SERVICE DATA
FILE NO. 410 - 001

CCD COLOR CAMERA
Model IK-M40A
SERVICE MANUAL

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SECTION 1
GENERAL DESCRIPTION

The CCD camera IK-M40A is a color camera which has an ultra compact sized camera head.
A 1/2 inch type CCD consisting of total pixel of 410,000 is used as an image element and it provides horizontal resolution of higher than 460 TV lines.

To obtain full performance of CCD characteristics, the camera head and the camera control unit have been adjusted in the pair. So, when making a service which requires readjustment, always perform the adjustment in that pair.

SECTION 2
MAIN SPECIFICATIONS

Power supply		DC 12V ± 0.5V
Power consumption		5.2W
Image element		1/2", CCD image sensor, effective pixels 768H x 494V
Image area		6.54 x 4.89mm (1/2 inch type)
Scanning system		2:1 interlace
Scan frequency		H: 15.734 kHz, V: 59.94 Hz
Sync system		Internal/external, automatic switching
Resolution		H: More than 460 lines, V: More than 350 lines
Minimum intensity of illumination for objects		15 lux (F1.6, 3000K)
S/N		More than 46 dBs
Video output		VBS 1.0 Vp-p (BNC terminal), NTSC system, Y/C separation output (S terminal)
Output impedance		75 ohms, unbalanced
External sync	Input	VBS 1.0 Vp-p (BNC terminal), 75 ohms unbalanced
	Adjustment function	Subcarrier phase, H phase
White balance		Auto/push to set/ manual
Sensitivity switch (AGC)		SENS UP (+6 dBs)/ON/OFF
Electronic shutter	Front switch	1/60, 1/100, and high speed shutter selectable
	Rear switch	Selectable one of seven:1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
Environmental temperature/humidity		–10°C – 40°C/less than 90%
Weight		Camera head 0.56 oz (without lens) Camera control 1.37 lbs
Option	Lens	f = 3mm, 4mm, 7.5mm, 15mm, 24mm
	Camera cable	2m, 5m, 10m, 15m, 20m, 30m

SECTION 3
ELECTRICAL ADJUSTMENT PROCEDURES

1. Preparation before Adjustment and Check Items

1-1. Before Adjustment

The Adjustment procedures in this manual should be used only when some electrical components are replaced and related electrical adjustments are needed.
When some failures occur, always locate the failures using measurement equipments and perform repairing , replacing, and then make required adjustments. Do not try to make any adjustment before you do not find the location(s).
Moreover, some of failures may not require readjustment, so always perform the adjustment as required.

1-2. Equipment Required

1. Oscilloscope 5mV/div., 2 channels
2. Color video monitor
3. Lighting
   Halogen lamp (500W) x 2

Note:
If unevenness illumination exists on the pattern surface, correct adjustment will not be performed, so adjust lighting devices until flat illumination is obtained.

4. Camera adjustment chart
   Color bar chart 70909322
   Gray scale chart 70909321

Note:
Use new test charts without dirt

5. Adjustment drivers
6. Color temperature conversion filter (C16)
7. Tripod, lens, and AC adapter
   (or DC12V power supply)
8. Connection cables
   (video cable, S terminal cable)
9. Vector scope

1-3. Preparation

1. Place the chart at a position of about 50cm in front of the camera, and adjust light positions so that flat illumination is obtained at the test chart.
2. Connect the video output signal to the monitor and terminate it with a 75 ohm resistor.
3. Set switches on the CCU (Camera Control Unit) as follows:
   - Front panel

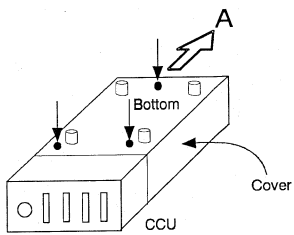
POWER	ON
WHITE BALANCE	FULL AUTO
AGC	OFF
SHUTTER	OFF

   - Rear panel

SHUTTER	125

Note:
Perform the adjustment in a place free from dusts, rubbish, etc. so that the camera head is free from dirty.

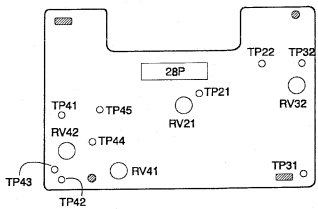
4. How to open CCU
   1) Disconnect all cables connected to the CCU.
   2) Remove three screws on bottom of the CCU.
   3) Pull out the cover by sliding it in the direction A shown.



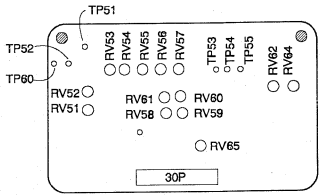
2. Flow Chart

The adjustment procedures given in this manual are described in the order required to perform all items. In practical field, perform only the items required according to the servicing carried out.

1. Initial setting
2. VOFD Adjustment
3. Input level Adjustment
4. VAP Adjustment
5. YH Adjustment
6. R matrix Adjustment
7. B matrix Adjustment
8. CHR level Adjustment
9. Burst level Adjustment
10. WB Adjustment
11. White clip Adjustment
12. AWB1 Adjustment
13. AWB2 Adjustment
14. AWB3 Adjustment
15. AGC check
16. Shutter operation check
17. External sync check
18. 30m cable picture quality check
19. Final check



Main P.C. Board



Video P.C. Board

3. Adjustment Procedures

3-1. Initial Setting

Adjusting point: RV41, RV42

1. Set front switches as follows:

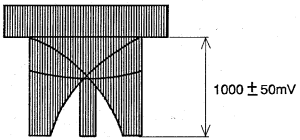
POWER	ON
WHITE BALANCE	FULL AUTO
GAIN	OFF
SHUTTER	OFF

2. Turn RV41 clockwise and RV42 fully counter clockwise.
3. Check to see POWER LED is turned on.
   Check to see AWB LED is turned on.

3-2. VOFD Adjustment

Test point: Q202 emitter
Test equipment: Oscilloscope
Adjusting point: RV32

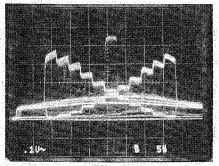
1. Shoot the gray scale to fill whole screen. Open the lens aperture to maximum so that saturation occurs sufficiently.
2. Adjust RV32 until emitter output of transistor Q202 shows 1000mV ± 50mV.



3-3. Input Level Adjustment

Test point: TP51, TP52
Test equipment: Oscilloscope
Adjusting point: Lens aperture, RV21

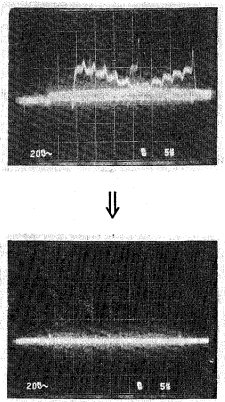
1. Shoot the gray scale to fill whole screen and adjust lens aperture until waveform at TP51 shows 450 mVp-p.



3-4. VAP Adjustment

Test point: TP56
Test equipment: Oscilloscope
Adjusting point: RV51, RV52

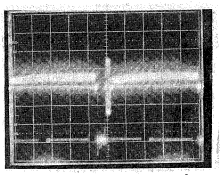
1. Shoot the gray scale to fill whole screen. Check amplitude of waveform at TP56 is minimum. (If not, perform following steps.)
2. Turn RV51 fully clockwise and adjust RV52 so that waveform amplitude at TP56 shows minimum.
3. Turn RV51 counter clockwise and then the waveform will appear again. Further turning in counter clockwise direction decreases the amplitude. Fix the adjustment at the minimum position.



3-5. YH Setting

Test point: TP51, TP57
Test equipment: Oscilloscope
Adjusting point: RV92, RV62

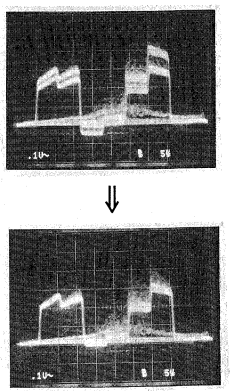
1. Remove the lens cap and adjust RV92 (M.PED) until pedestal level at TP57 shows 50 mVp-p.
2. Shoot the gray scale to fill whole screen. Adjust lens aperture until waveform level of 450 mVp-p is obtained at TP51.
3. Adjust RV62 so that white part of the gray scale shows 720 mVp-p at TP57. (Hereafter, this level is called gray scale shooting.)



3-6. R Matrix Adjustment

Test point: TP55
Test equipment: Oscilloscope
Adjusting point: RV53, RV54

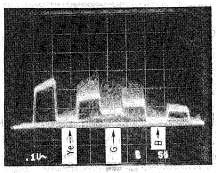
1. Shoot the color bar chart to fill whole screen and to obtain 630 mVp-p at white at TP57. (Hereafter, this operation is called a color bar shooting.)
2. Check waveform image at TP55 is doubled or not. If doubled adjust RV53.
3. Turn RV54 fully clockwise.



3-7. B Matrix Adjustment

Test point: TP53
Test equipment: Oscilloscope
Adjusting point: RV55

1. Perform the color bar shooting at TP53. Adjust RV55 until the following relation is obtained among Ye level, G level and B level.
   G>Ye>B

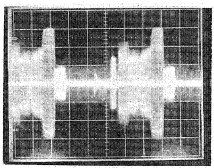


3-8. CHR Level Adjustment

Test point: TP57
Test equipment: Oscilloscope, vector scope
Adjusting point: RV56 – 61

1. Shoot white part of the color bar at center of the screen and set the white peak to 0.7V at TP57.
2. Adjust RV56 and RV57 for minimum white carrier.
3. Shoot red part and blue part of the color bar at center of the screen respectively. Adjust color gain with RV58 & RV59, and hue with RV60 & RV61 to obtain the values given in the table.

	Gain	Hue
R carrier	0.6V	104 degrees
B carrier	0.2V	335 degrees



3-9. Burst Level Adjustment

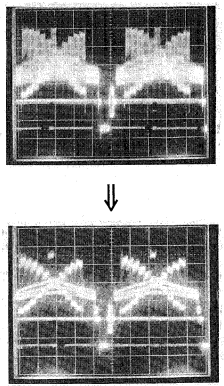
Test point: TP57
Test equipment: Oscilloscope
Adjusting point: RV65

1. Adjust RV65 so that burst level at TP57 shows 0.28 Vp-p.

3-10. W.B Adjustment

Test point: TP57
Test equipment: Oscilloscope
Adjusting point: RV56, RV57

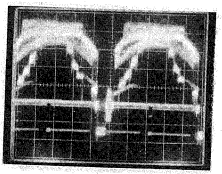
1. Shoot the gray scale to fill whole screen.
2. Adjust RV56 and RV57 alternately until carrier signal of stair step waveform shows minimum.



3-11. White Clip Adjustment

Test point: TP57
Test equipment: Oscilloscope
Adjusting point: RV65

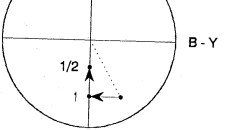
1. Shoot the gray scale to fill whole screen. Open the lens aperture so that sufficient saturation occurs on the waveform. Adjust RV65 until 0.85V is obtained at TP57.



3-12. AWB1 Adjustment

Test point: TP44, TP45
Test equipment: Oscilloscope
Adjusting point: RV41, RV42

1. Shoot the gray scale to fill whole screen with the specified color conversion filter (C16) attached and to obtain 700 mVp-p at white peak.
2. Adjust RV41 until hue is brought onto R – Y axis. Then, adjust RV42 until the carrier level decreases to 1/2.
3. Check 4.9V ± 0.3V is obtained at TP44 and TP45. (If not, turn RV41 fully clockwise and RV42 fully counter clockwise, and return to the step 3-2.)
4. Short circuit TP42 and TP43 with a clip, and adjust RV41 and RV42 to make white balance. Remove the clip after the adjustment.



3-13. AWB2 Adjustment

Test point: TP57
Test equipment: Oscilloscope
Adjusting point: ————————

1. Shoot the gray scale to fill whole screen, and make sure the carrier is within 0.1V.
2. Remove the color temperature conversion filter and shoot the gray scale. Make sure the carrier is within 0.1V.

3-14. AWB3 Adjustment

Test point: TP57
Test equipment: Oscilloscope
Adjusting point: R, B controls (RV90, RV91)

1. Set the AWB SW to SET position.
2. Shoot the gray scale to fill whole screen. Push the SET button and check carrier is within 0.1V. Also check, the AWB LED will change from blinking to lighting up under this condition.
3. Set the AWB SW to MANU position. Adjust FRONT R and B controls for minimum carrier. Make sure the AWB LED is turned off.

3-15. AGC Adjustment

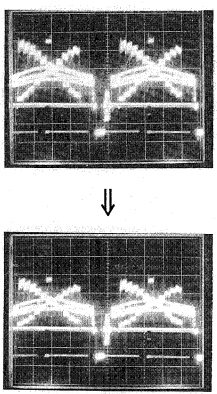
Test point: TP57
Test equipment: Oscilloscope
Adjusting point: GAIN SW

1. Shoot the gray scale to fill whole screen. Adjust the lens aperture until white peak shows 0.28V.
2. Turn on the gain switch and make sure amplitude of white shows 0.45V.
3. Place the gain switch to S.UP and make sure amplitude of white shows 0.63V.
4. Turn off the gain switch.

3-16. Shutter Operation Adjustment

Test point: TP57
Test equipment: Oscilloscope
Adjusting point: SHUTTER SW, SHUTTER VR

1. Shoot the gray scale so that white level shows 0.7V at TP57.
2. Set the SHUTTER SW to 1/100 and make sure the white level shows 0.56V at TP57.
3. Turn off the SHUTTER SW.
4. Switch the SHUTTER VR on the rear panel from 1/125 through 1/1000 successively, and make sure the white level will decrease according to the switching. Also make sure that no abnormality occurs during above operations.
5. Set the SHUTTER SW to OFF and the SHUTTER VR to 1/125.



3-17. External Sync Check

Test point: VIDEO OUT
Test equipment: Oscilloscope, monitor
Adjusting point: H phase VR (RV01)

1. Feed an external sync signal (VBS or BBS)
2. Check the external sync signal and the camera VIDEO output are synchronized. If not, turn RV01 to adjust SYNC position.
3. Check scope display shows no abnormality.

3-18. 30m Cable Picture Quality Check

Test point: TP57
Test equipment: Oscilloscope, monitor
Adjusting point: RV32

1. Connect a 30m cable and make sure no abnormality occurs on picture quality. Use the gray scale and the color bar. (In this case also make sure the waveform does not show any abnormality.)
2. Shoot excessively high incidence light with the 30m cable connected and make sure there is no vertical stripes or no discoloring occur at the light incidence part. If not, adjust RV32 to obtain the best picture quality.

Measurement condition for item 2 of 3-18

1. Switch positions on the front panel

WHITE BALANCE	FULL AUTO
GAIN	OFF
SHUTTER	OFF

2. Lens: Fully open
3. RV32 adjustment

Counter clockwise ⟵ Clockwise

Vertical stripes	Best point	Undesirable coloring at excessive light incidence

4. Object: Fluorescent lamp (about 20000 lux)
5. Shoot the object so that it is brought at upper half of the screen, and make sure undesirable coloring due to excessive incident light at the upper half and the vertical stripes at lower half of the screen.

3-19. Final Check

1. Check switches on the front panel are positioned as follows:

POWER	OFF
WHITE BALANCE	FULL AUTO
GAIN	OFF
SHUTTER	OFF

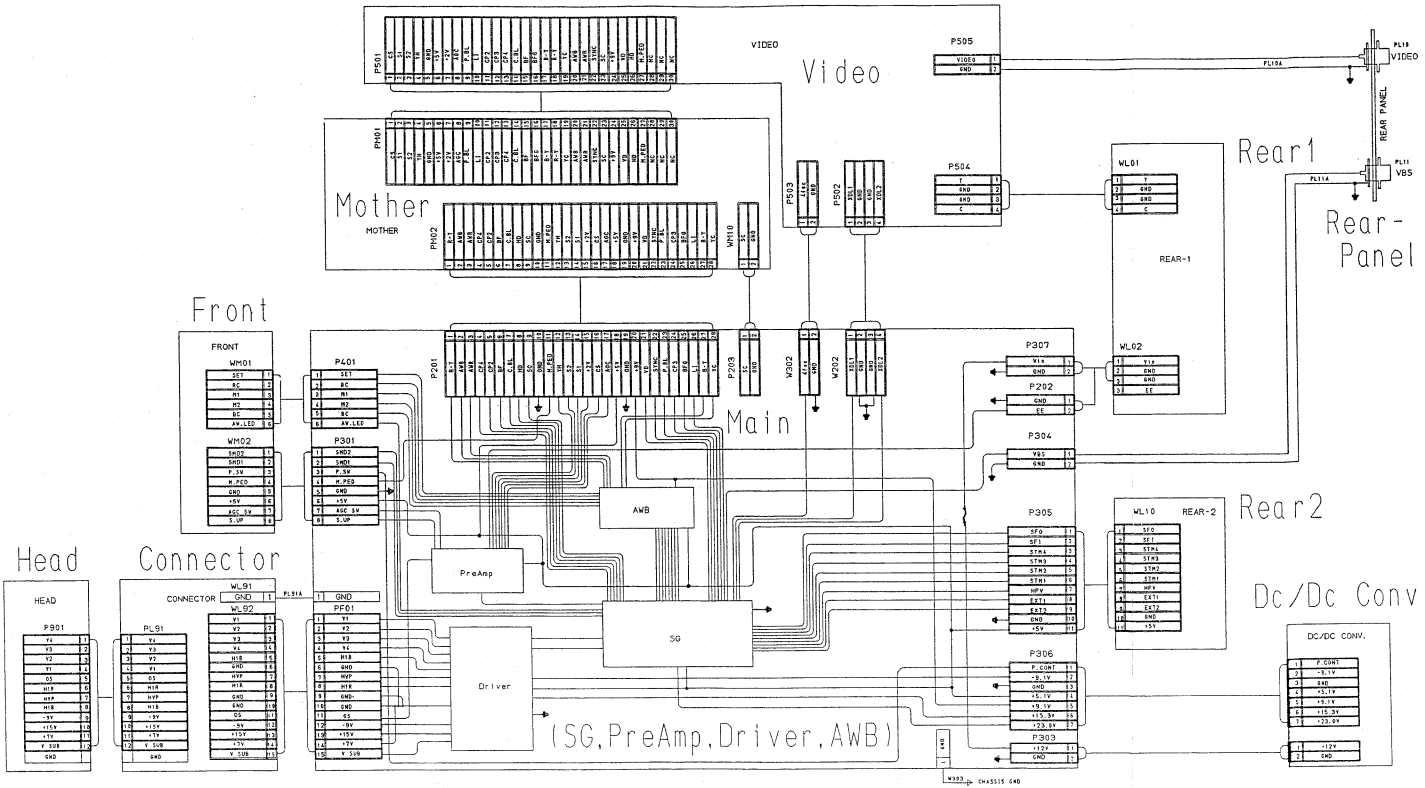
2. Check switches and controls on the rear panel are positioned as follows:

SHUTTER VR	125
SC SW	1,3
GAIN	OFF

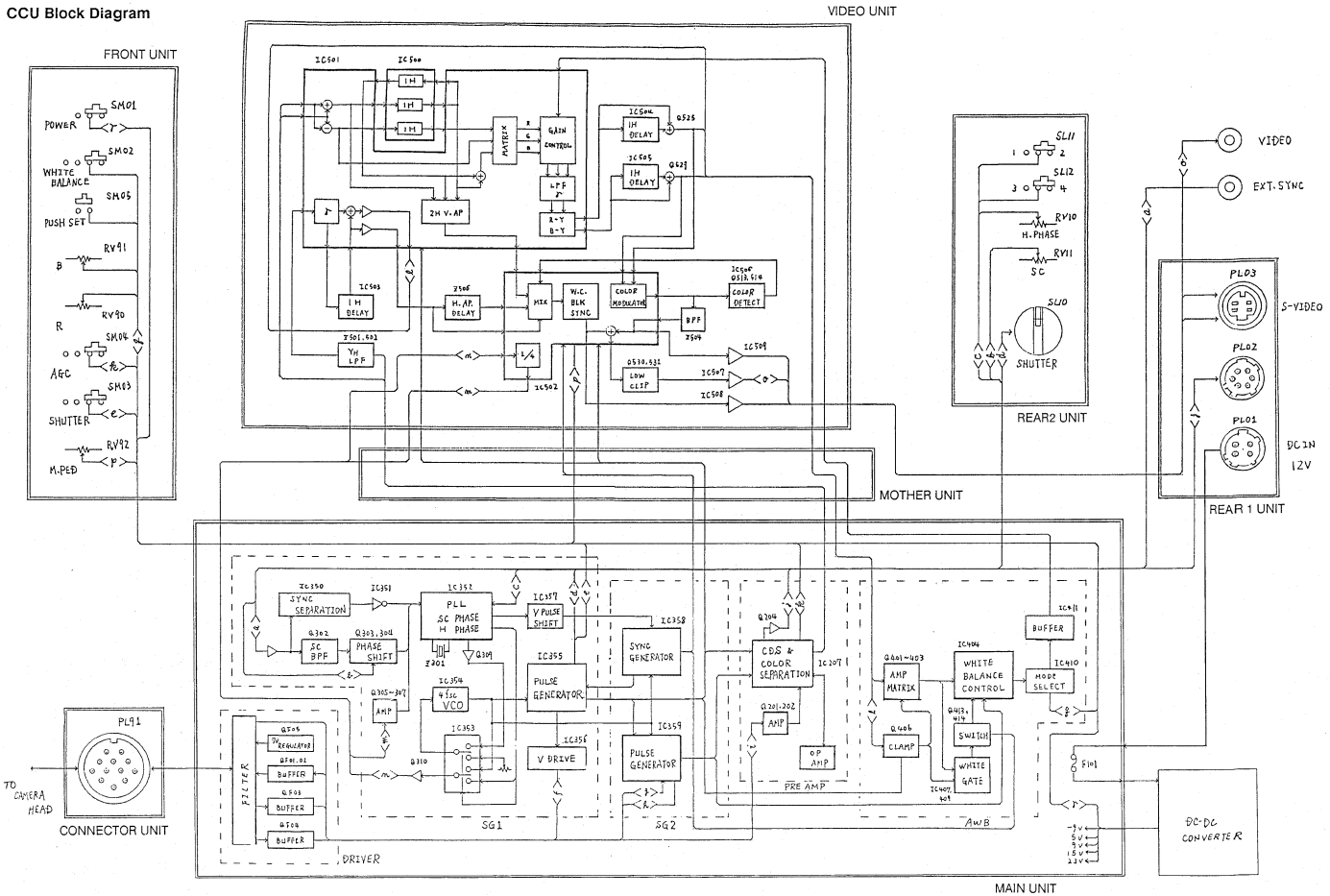
SECTION 4
SERVICING DIAGRAM

1. BLOCK DIAGRAMS AND CIRCUITS

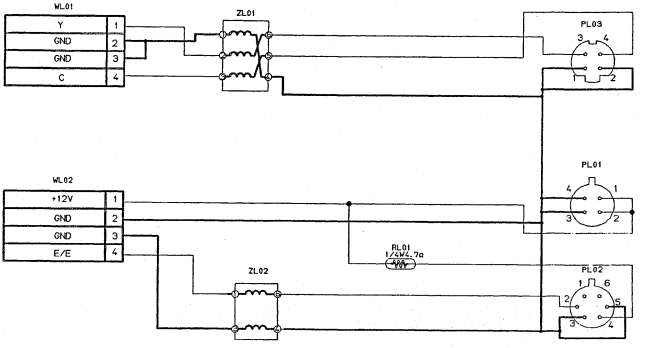
1-1. Wiring Diagram



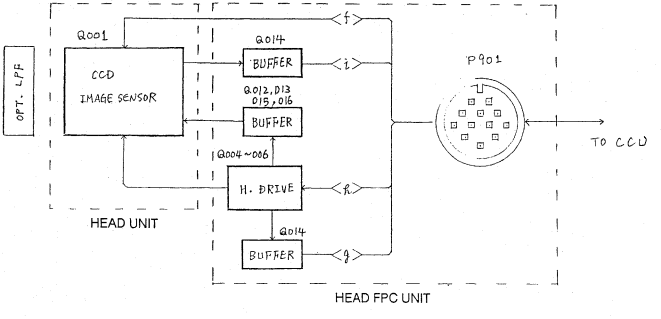
1-2. CCU Block Diagram



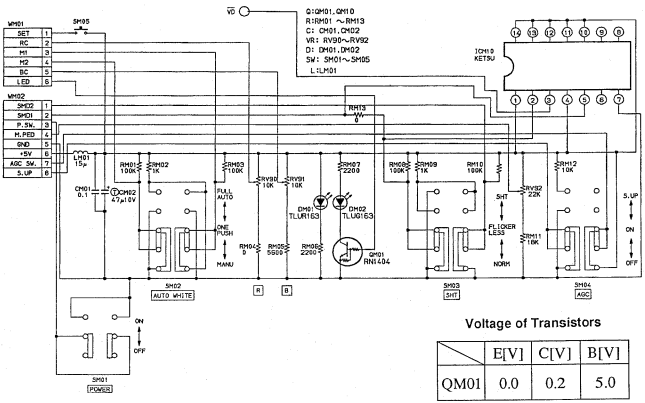
1-3. Rear1Circuit Diagram



1-4. Camera Head Block Diagram



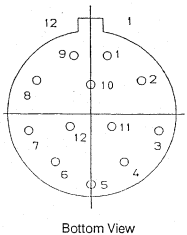
1-5. FrontCircuit Diagram

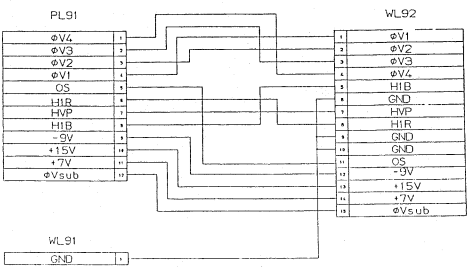


Voltage of Transistors

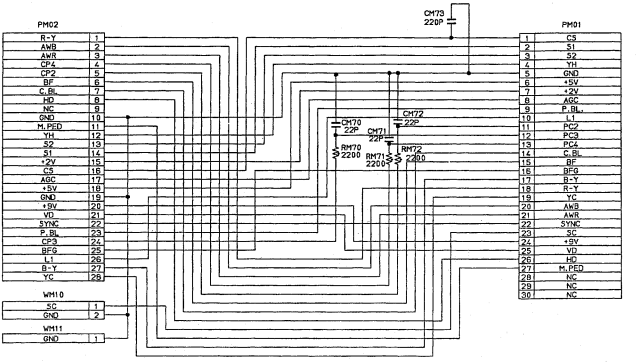
	E[V]	C[V]	B[V]
QM01	0.0	0.2	5.0

1-6. Connector





1-7. Mother Circuit Diagram



Last NO
C:CM70~CM73
R:RM70~RM72
P:PM01,PM02
W:WM10,WM11

1-8. Main 1 SG1 Circuit Diagram

Voltage of ICs

Q356

Pin No.	Volt (V)
1	0.0
2	5.0
3	4.7
4	4.8
5	5.0
6	0.1
7	5.0
8	0.1
9	5.0
10	0.0
11	0.0
12	15.0
13	-0.3
14	-0.3
15	0.0
16	-8.6
17	-8.6
18	-9.1
19	-9.1
20	15.0

Q350

Pin No.	Volt (V)
1	2.8
2	3.5
3	7.8
4	4.6
5	0.0
6	0.0
7	0.2
8	0.0
9	8.8

Q353

Pin No.	Volt (V)
1	0.0
2	2.5
3	0.3
4	2.3
5	2.3
6	0.0
7	0.0
8	0.0
9	0.0
10	0.0
11	0.0
12	5.0
13	5.0
14	5.0
15	2.5
16	5.0

IC360

Pin No.	Volt (V)
1	0.0
2	4.5
3	0.0
4	0.5
5	5.0

Q362

Pin No.	Volt (V)
1	0.0
2	0.0
3	0.0
4	0.0
5	5.0

IC357

Pin No.	Volt (V)
1	0.0
2	5.0
3	0.0
4	0.0
5	0.0
6	0.0
7	5.0
8	0.0
9	5.0
10	0.0
11	0.0
12	0.0
13	0.0
14	0.0
15	0.0
16	5.0

IC354

Pin No.	Volt (V)
1	2.4
2	0.0
3	0.0
4	2.5
5	5.0

IC351

Pin No.	Volt (V)
1	0.0
2	3.8
3	0.0
4	0.0
5	5.0

IC355

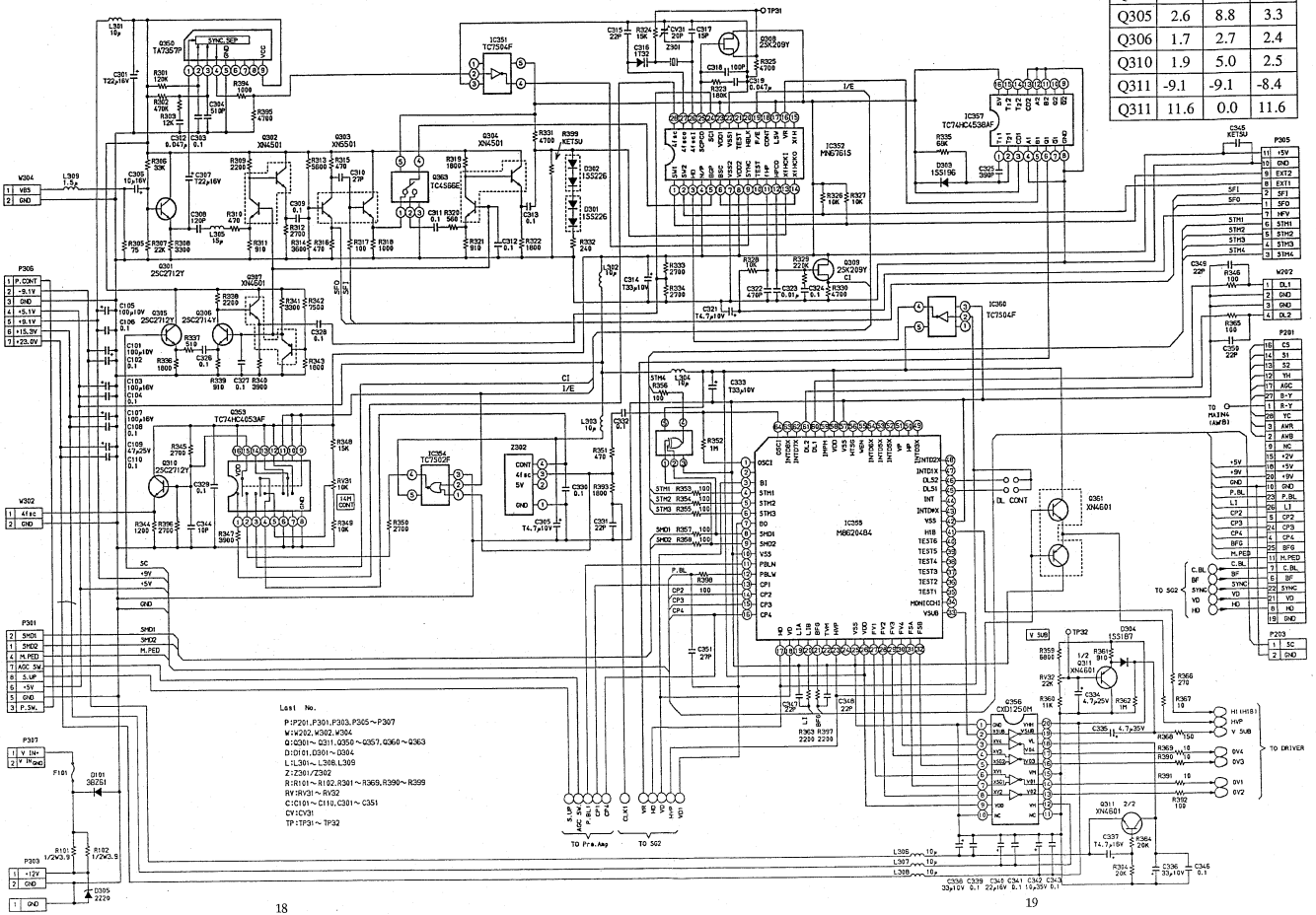
Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	2.4	23	0.5	45	5.0
2	5.0	24	0.0	46	5.0
3	4.8	25	0.0	47	0.0
4	0.0	26	5.0	48	0.0
5	0.0	27	0.1	49	0.0
6	0.0	28	0.1	50	0.0
7	0.2	29	4.8	51	0.0
8	0.0	30	4.7	52	0.0
9	0.0	31	5.0	53	0.0
10	0.0	32	5.0	54	0.0
11	4.2	33	5.0	55	0.0
12	4.1	34	0.0	56	0.0
13	0.2	35	0.0	57	0.0
14	0.1	36	0.0	58	5.0
15	0.1	37	0.0	59	0.0
16	0.1	38	0.0	60	2.3
17	4.5	39	0.0	61	2.3
18	4.8	40	0.0	62	0.0
19	2.5	41	2.3	63	0.0
20	2.5	42	0.0	64	2.3
21	4.7	43	0.0		
22	0.0	44	0.0		

IC352

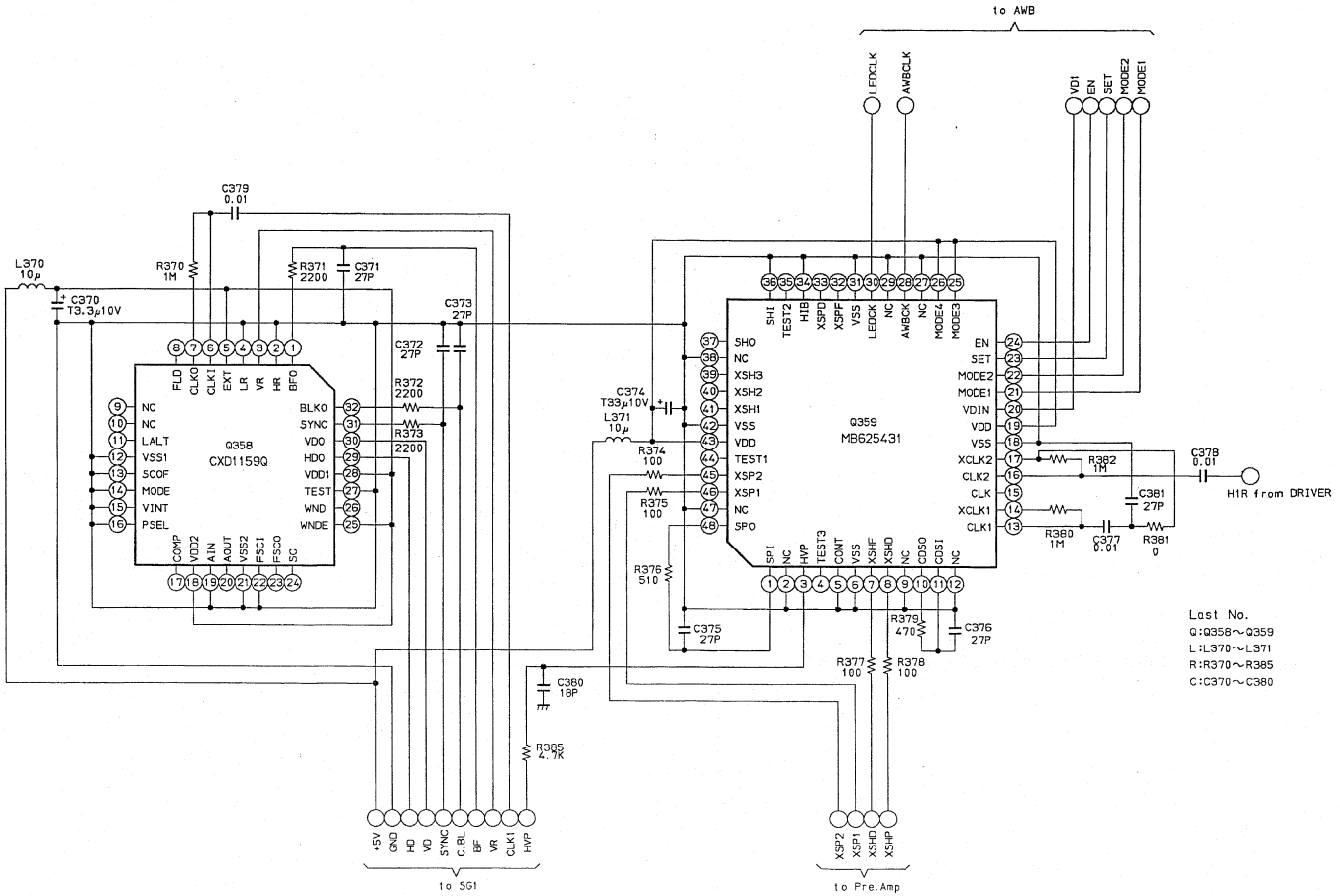
Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	5.0	11	1.6	21	5.0
2	5.0	12	0.0	22	0.0
3	0.5	13	1.3	23	5.0
4	5.0	14	5.0	24	2.5
5	0.0	15	0.0	25	0.0
6	5.0	16	5.0	26	0.0
7	0.0	17	5.0	27	5.0
8	5.0	18	0.0	28	0.0
9	0.0	19	0.0		
10	5.0	20	0.0		

Voltage of Transistors

	E[V]	C[V]	B[V]
Q301	2.8	8.8	3.5
Q305	2.6	8.8	3.3
Q306	1.7	2.7	2.4
Q310	1.9	5.0	2.5
Q311	-9.1	-9.1	-8.4
Q311	11.6	0.0	11.6



1-9. Main 2 SG2 Circuit Diagram



Voltage of ICs

Q359

Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	2.4	13	2.3	25	5.0	37	0.0
2	0.0	14	2.4	26	5.0	38	0.0
3	0.5	15	0.0	27	0.0	39	0.0
4	0.0	16	2.3	28	2.0	40	0.0
5	0.0	17	2.3	29	0.0	41	0.0
6	0.0	18	0.0	30	5.0	42	0.0
7	3.7	19	5.0	31	0.0	43	5.0
8	3.6	20	0.2	32	0.0	44	0.0
9	0.0	21	4.7	33	0.0	45	4.3
10	2.2	22	4.7	34	0.0	46	4.2
11	2.4	23	4.2	35	0.0	47	0.0
12	0.0	24	0.0	36	0.0	48	2.4

Q358

Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	4.8	12	0.0	23	0.0
2	0.0	13	0.0	24	0.0
3	0.0	14	0.0	25	0.0
4	0.0	15	0.0	26	0.0
5	5.0	16	0.0	27	0.0
6	2.4	17	0.0	28	5.0
7	2.4	18	5.0	29	4.5
8	0.0	19	0.0	30	4.8
9	0.0	20	0.0	31	4.6
10	0.0	21	0.0	32	3.8
11	0.0	22	0.6		

1-10. Main 3 Pre Amp Circuit Diagram

Voltage of ICs

IC207

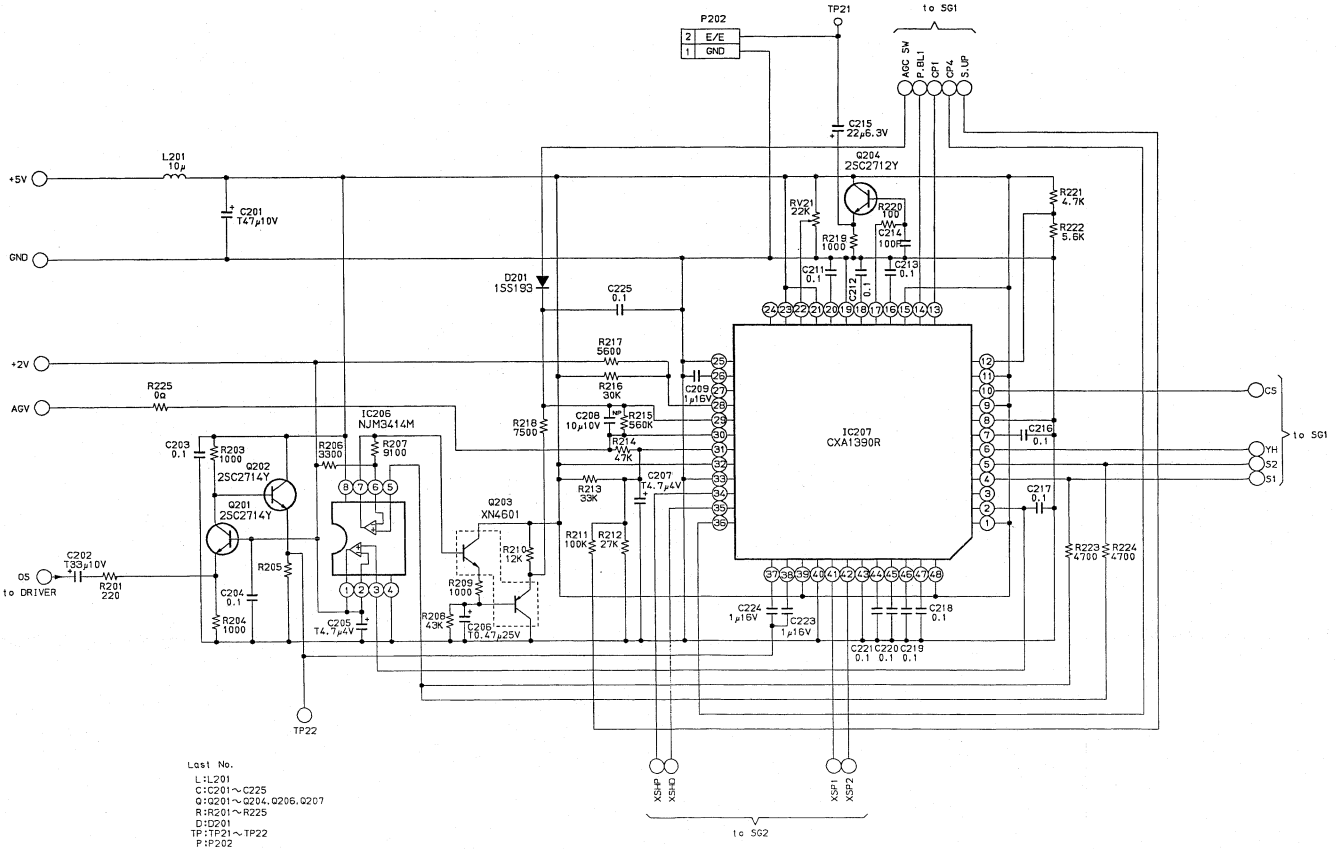
Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	5.0	13	0.2	25	0.0	37	0.0
2	1.9	14	4.2	26	2.6	38	3.3
3	0.0	15	5.0	27	0.0	39	5.0
4	2.2	16	2.9	28	2.4	40	0.0
5	2.2	17	2.1	29	4.5	41	4.2
6	2.1	18	2.3	30	0.7	42	4.3
7	3.0	19	0.0	31	1.7	43	0.0
8	0.0	20	2.2	32	5.0	44	1.6
9	5.0	21	5.0	33	0.0	45	2.2
10	2.0	22	2.5	34	3.6	46	2.2
11	5.0	23	5.0	35	3.8	47	2.2
12	2.7	24	0.0	36	0.1	48	5.0

Q350

Pin No.	Volt (V)
1	1.9
2	1.9
3	1.9
4	0.0
5	2.2
6	2.2
7	2.8
8	5.0

Voltage of Transistors

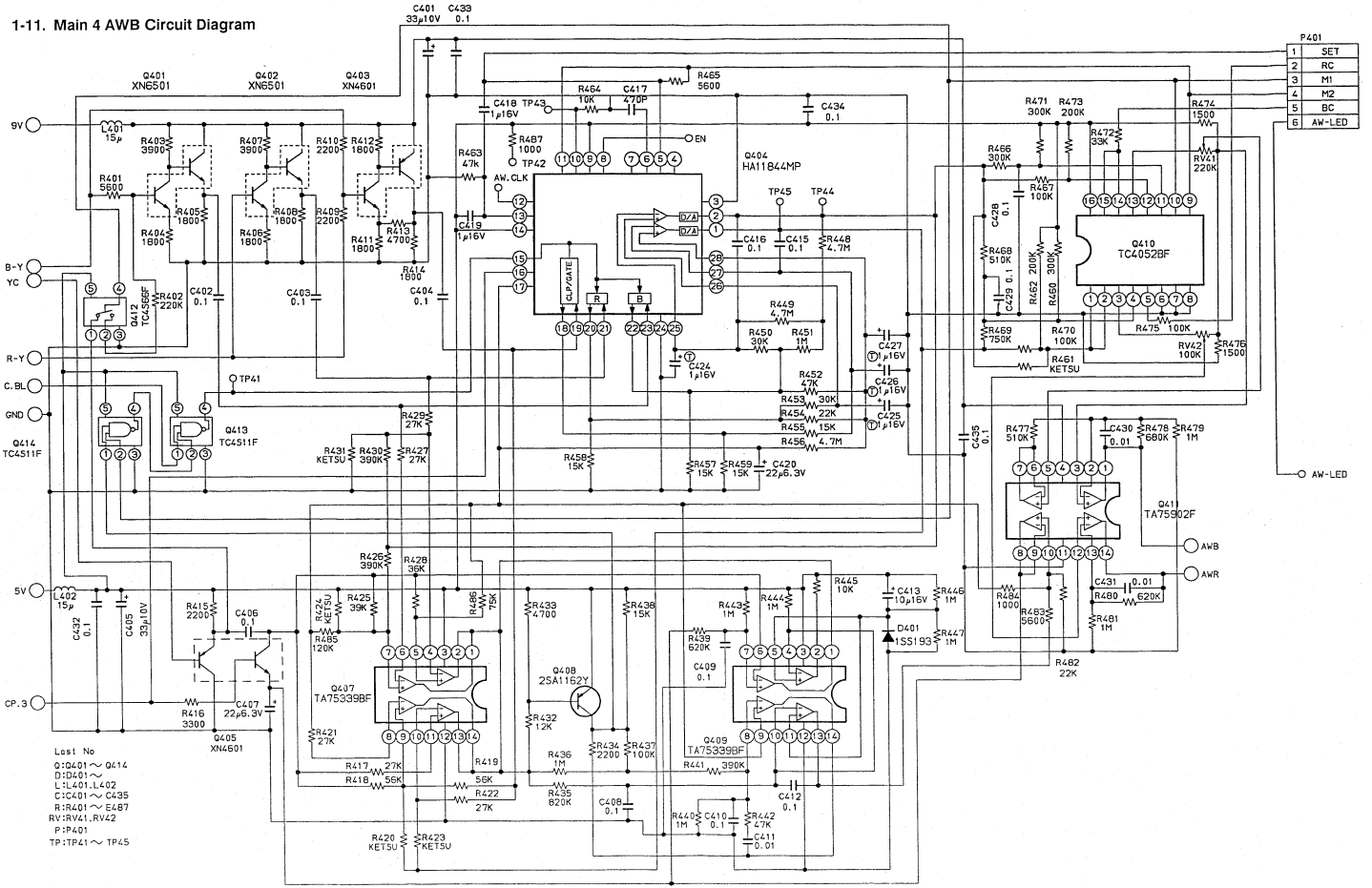
	E[V]	C[V]	B[V]
Q201	1.2	3.7	1.9
Q202	3.0	5.0	3.7
Q204	1.5	5.0	2.1



Last No.

L:L201
C:C201～C225
Q:Q201～Q204.Q206.Q207
R:R201～R225
D:D201
TP:TP21～TP22
P:P202

1-11. Main 4 AWB Circuit Diagram



Voltage of ICs

IC352

Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	5.0	11	1.6	21	5.0
2	5.0	12	0.0	22	0.0
3	0.5	13	1.3	23	5.0
4	5.0	14	5.0	24	2.5
5	0.0	15	0.0	25	0.0
6	5.0	16	5.0	26	0.0
7	0.0	17	5.0	27	5.0
8	5.0	18	0.0	28	0.0
9	0.0	19	0.0		
10	5.0	20	0.0		

Q407

Pin No.	Volt (V)	Pin No.	Volt (V)
1	4.9	9	4.7
2	4.9	10	4.7
3	3.0	11	2.8
4	3.0	12	2.4
5	2.6	13	2.8
6	0.0	14	2.4
7	0.0	15	2.4
8	0.0	16	5.0

Q407

Pin No.	Volt (V)	Pin No.	Volt (V)
1	0.8	8	2.5
2	0.8	9	2.5
3	5.0	10	0.0
4	2.4	11	2.6
5	0.0	12	0.0
6	2.5	13	0.8
7	2.5	14	0.8

Q409

Pin No.	Volt (V)	Pin No.	Volt (V)
1	0.8	8	2.6
2	0.1	9	2.5
3	5.0	10	2.7
4	2.7	11	2.1
5	2.5	12	0.0
6	2.6	13	0.1
7	3.1	14	0.1

Q411

Pin No.	Volt (V)	Pin No.	Volt (V)
1	4.0	8	2.1
2	2.5	9	2.1
3	2.5	10	2.1
4	8.9	11	0.0
5	2.7	12	2.6
6	2.7	13	2.6
7	2.7	14	4.2

Q414

Pin No.	Volt (V)
1	4.7
2	4.2.
3	0.0
4	1.1
5	5.0

Q413

Pin No.	Volt (V)
1	3.8
2	0.9
3	0.0
4	5.0
5	4.1

Q412

Pin No.	Volt (V)
1	3.2
2	3.2
3	0.0
4	4.7
5	5.0

Voltage of Transistors

	E[V]	C[V]	B[V]
Q408	5.0	4.2	4.4

1-12. Video Circuit Diagram

Voltage of ICs

IC503

Pin No.	Volt (V)
1	2.3
2	0.0
3	1.8
4	0.0
5	2.3
6	0.0
7	5.0
8	1.3

IC504

Pin No.	Volt (V)
1	2.2
2	5.0
3	1.7
4	0.0
5	2.4
6	0.0
7	5.0
8	1.0

IC505

Pin No.	Volt (V)
1	2.2
2	5.0
3	2.1
4	0.0
5	2.3
6	0.0
7	5.0
8	1.3

Q507

Pin No.	Volt (V)
1	2.1
2	5.0
3	2.4
4	0.0

Q508

Pin No.	Volt (V)
1	2.2
2	5.0
3	2.4
4	0.0

Q509

Pin No.	Volt (V)
1	2.0
2	5.0
3	2.7
4	0.0

IC500

Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	0.0	6	0.1	11	1.9	16	2.3
2	1.6	7	5.0	12	2.4	17	5.0
3	1.6	8	2.0	13	0.0	18	1.8
4	5.0	9	0.9	14	0.0	18	2.7
5	1.6	10	2.0	15	2.4	20	1.8

IC501

Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	3.2	23	2.5	45	1.9
2	3.7	24	1.9	46	2.0
3	3.1	25	0.0	47	3.6
4	2.8	26	0.0	48	3.3
5	2.3	27	2.8	49	2.0
6	2.4	28	1.8	50	2.0
7	0.0	29	1.8	51	2.4
8	1.8	30	1.8	52	1.7
9	0.1	31	1.7	53	3.0
10	0.1	32	2.5	54	3.6
11	2.8	33	3.4	55	3.8
12	3.2	34	3.3	56	3.8
13	3.5	35	3.3	57	3.6
14	2.2	36	3.3	58	0.0
15	3.6	37	3.2	59	2.1
16	3.1	38	4.2	60	2.1
17	3.4	39	3.8	61	2.1
18	3.4	40	2.3	62	5.0
19	2.5	41	2.5	63	3.6
20	2.5	42	3.2	64	1.0
21	3.4	43	2.9		
22	3.4	44	3.0		

IC502

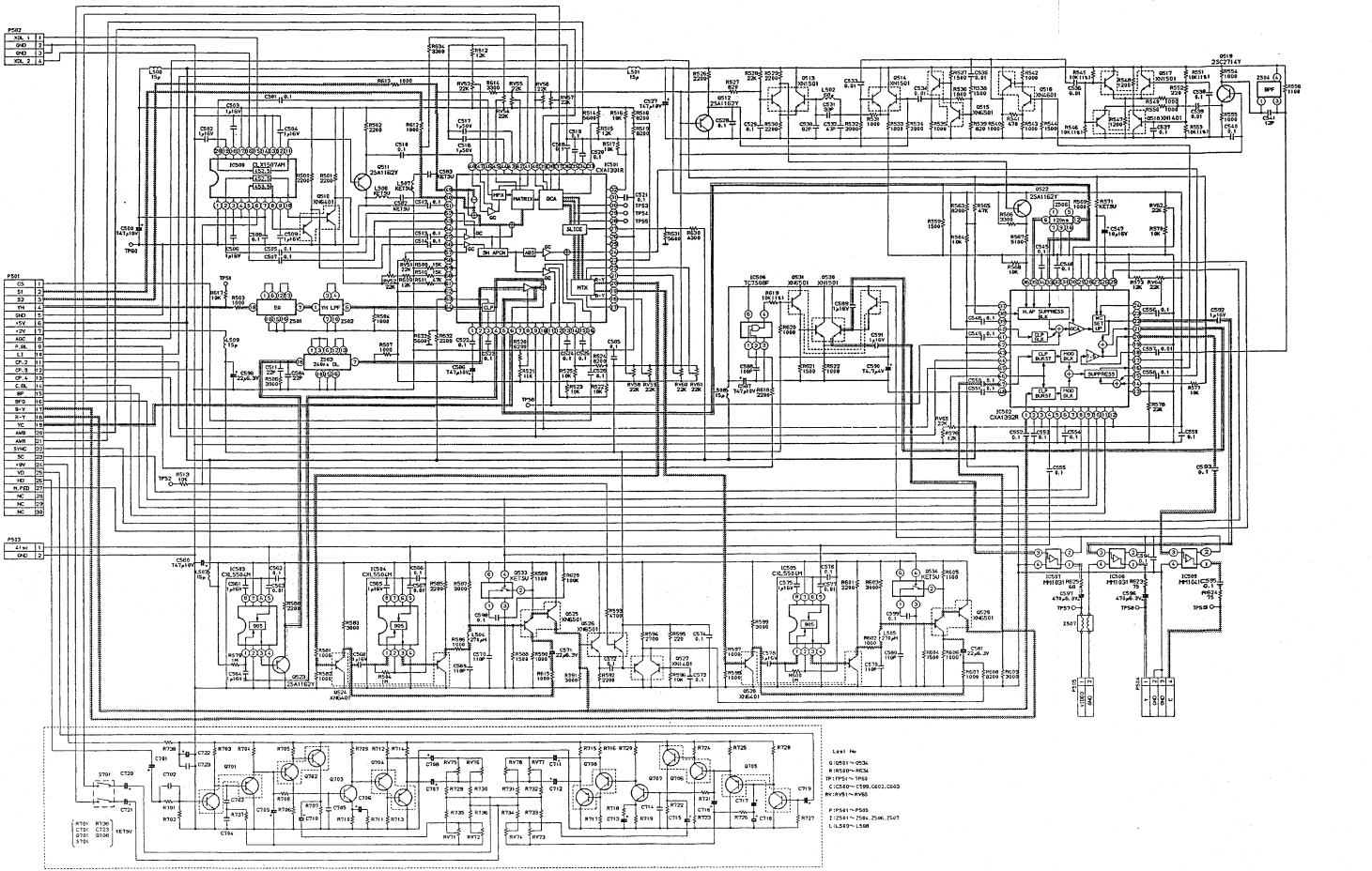
Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)	Pin No.	Volt (V)
1	3.0	13	0.0	25	4.6	37	0.0
2	3.4	14	0.5	26	0.0	38	2.6
3	5.0	15	0.7	27	2.8	39	0.0
4	2.5	16	2.8	28	0.0	40	5.0
5	0.0	17	5.0	29	0.0	41	3.5
6	0.0	18	2.5	30	3.0	42	2.9
7	0.0	19	0.0	31	0.0	43	0.0
8	3.4	20	2.0	32	3.2	44	0.1
9	4.7	21	2.0	33	2.4	45	0.1
10	4.8	22	2.5	34	3.2	46	3.2
11	3.8	23	3.4	35	2.4	47	3.0
12	5.0	24	3.5	36	3.2	48	3.5

IC506

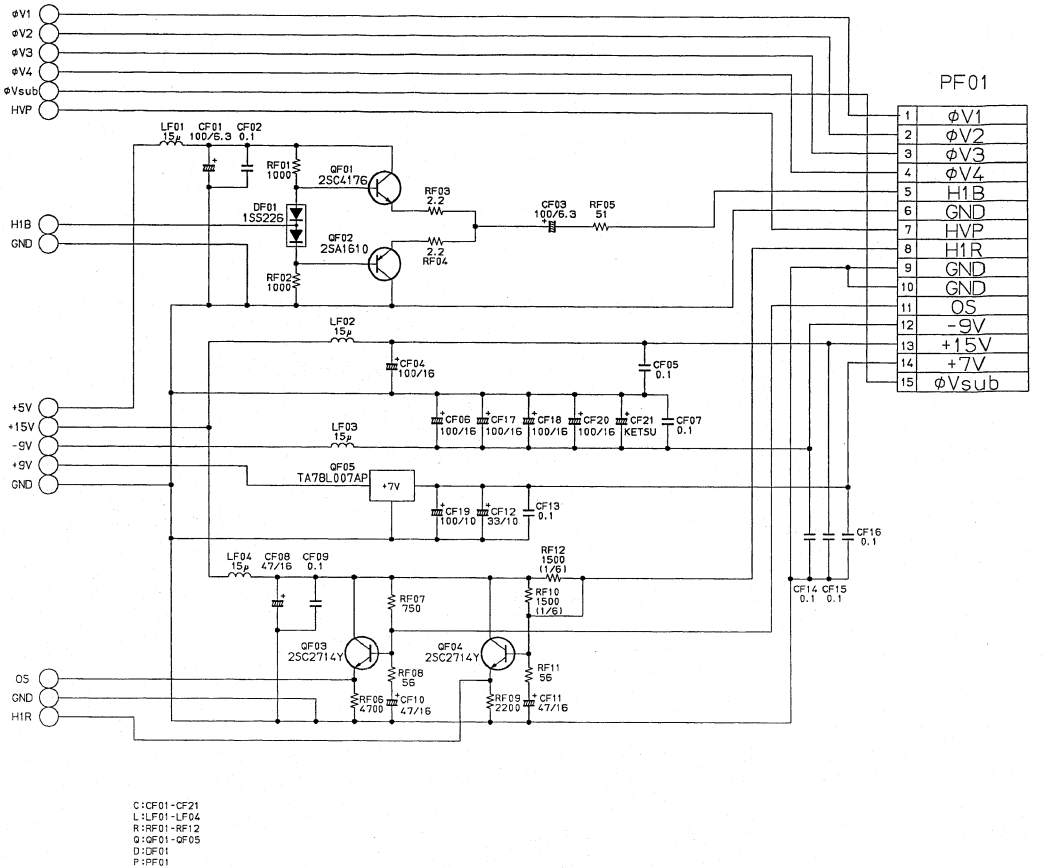
Pin No.	Volt (V)	Pin No.	Volt (V)
1	4.1	4	4.1
2	4.1	5	0.0
3	0.0	6	5.0

Voltage of Transistors

	E[V]	C[V]	B[V]
Q511	2.5	0.0	1.9
Q512	2.6	0.0	1.9
Q519	1.3	3.8	2.0
Q522	5.0	4.7	4.4
Q523	2.5	0.0	1.8



1-13. Driver Circuit Diagram

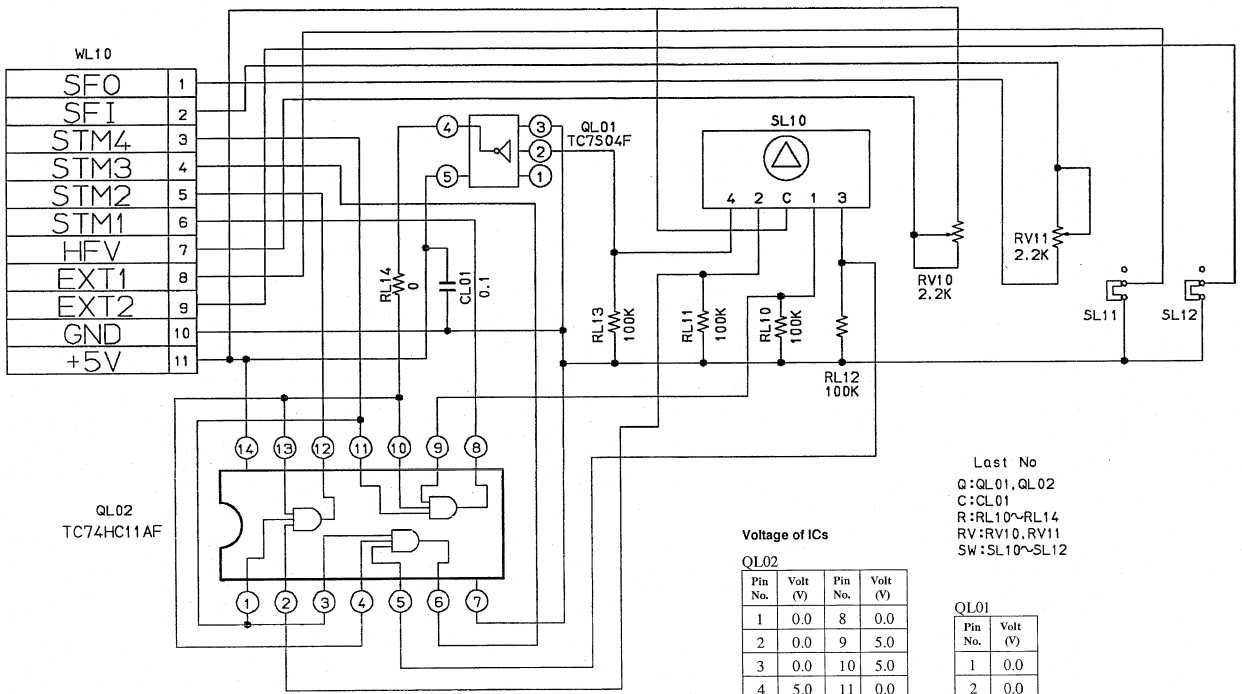


Voltage of Transistors

	E[V]	C[V]	B[V]
QF01	2.5	5.0	2.6
QF02	2.5	0.0	2.3
QF03	9.7	14.9	10.4
QF04	3.5	14.9	3.6

C:CF01-CF21
L:LF01-LF04
R:RF01-RF12
Q:QF01-QF05
D:DF01
P:PF01

1-15. Rear 2 Circuit Diagram



Voltage of ICs

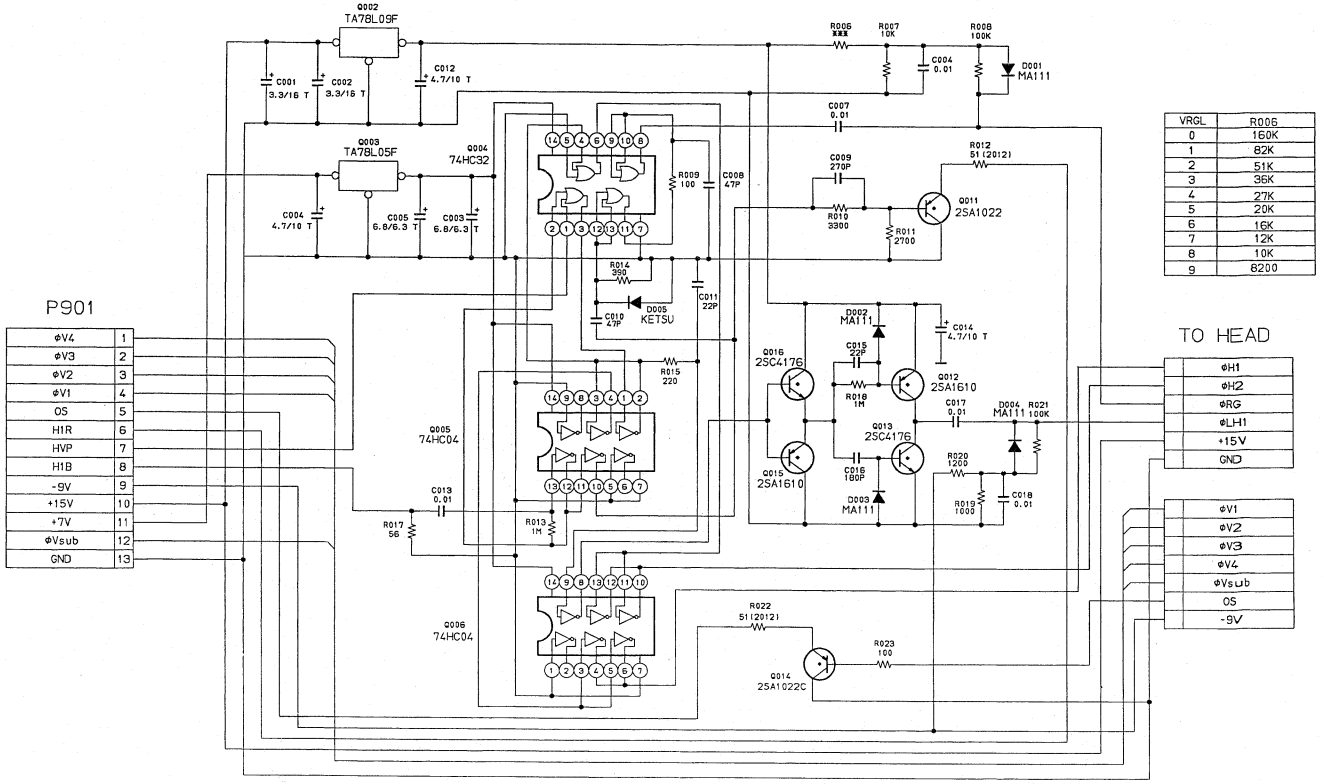
QL02

Pin No.	Volt (V)	Pin No.	Volt (V)
1	0.0	8	0.0
2	0.0	9	5.0
3	0.0	10	5.0
4	5.0	11	0.0
5	0.0	12	0.0
6	0.0	13	5.0
7	0.0	14	5.0

QL01

Pin No.	Volt (V)
1	0.0
2	0.0
3	0.0
4	5.0
5	5.0

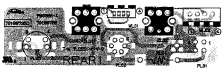
1-14. Head FPC Circuit Diagram



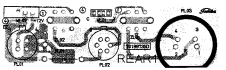
VRGL	R006
0	160K
1	82K
2	51K
3	36K
4	27K
5	20K
6	16K
7	12K
8	10K
9	8200

2. PRINTED CIRCUIT BOARD

2-1. Rear 1 PC Board



Rear 1 PC Board (Front Side)



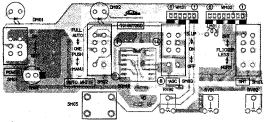
Rear 1 PC Board (Front Side)

2-2. Head Unit PC Board

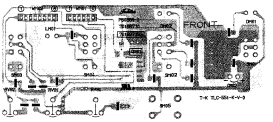
Head Unit PC Board (Front Side)

Head Unit PC Board (Rear Side)

2-3. Front PC Board

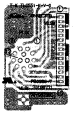


Front PC Board (Front Side)

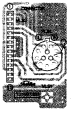


Front PC Board (Rear Side)

2-4. Connector PC Board

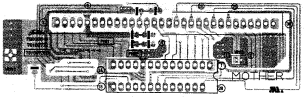


Connector PC Board (Front Side)

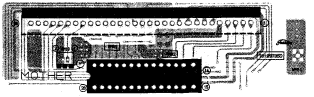


Connector PC Board (Rear Side)

2-5. Mother PC Board

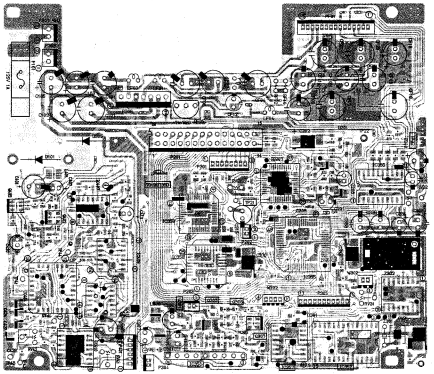


Mother PC Board (Front Side)

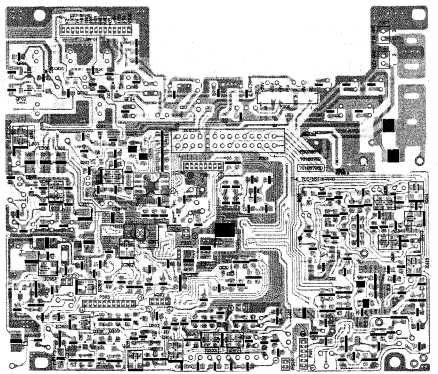


Mother PC Board (Rear Side)

2-6. Main PC Board

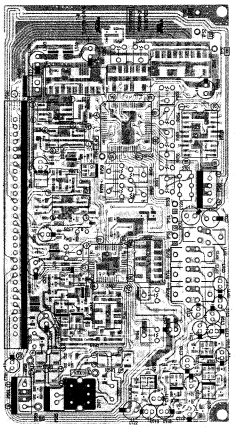


Main PC Board (Front Side)

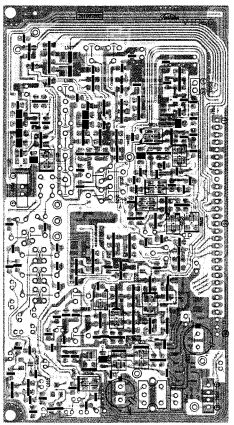


Main PC Board (Rear Side)

2-7. Video PC Board

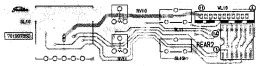


Video PC Board (Front Side)

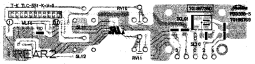


Video PC Board (Rear Side)

2-8. Rear 2 PC Board

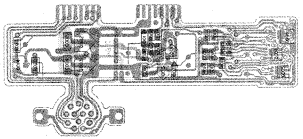


Rear 2 PC Board (Front Side)

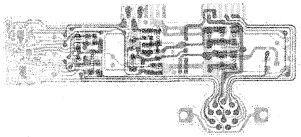


Rear 2 PC Board (Rear Side)

2-9. FPC PC Board



FPC PC Board (Front Side)



FPC PC Board (Rear Side)

SECTION 5
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

The parts identified by ⚠ mark are critical for safety. Replace only with part number specified.
The mounting position of replacement is to be identical with originals. The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.
Parts marked # are of chip type and mounted on original PC boards.
However, when they are placed for servicing works, use discrete parts listed on the parts list.

ABBREVIATIONS

1. Integrated circuit (IC)
2. Capacitor (Cap)
   - Unit

		Ex.
F	farad	
MF	microfarad (μF = 10^{-6}F)	10MF = 10μF
PF	picofarad (pF = $10^{-6}\mu$F = 10^{-12}F)	10PF = 10pF

   - Capacitance tolerance (for nominal capacitance higher than 10pF)

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	±0.1	±0.25	±0.5	±1	±2	±5	±10	±20	±30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+100 0	+30 −10	+50 −10	+75 −10	+20 −10	+100 −10	+40 −20	+150 −10	+80 −20

Ex. 10MF J = 10μF ±5%

   - Capacitance tolerance (for nominal capacitance lower than 10pF)

Symbol	B	C	D	F	G
Tolerance pF	±0.1	±0.25	±0.5	±1	±2

Ex. 10PF G = 10pF ± 2pF

3. Resistor (Res)
   - Unit

		Ex.	
No Mark	Ω	10	10Ω
K	kΩ	10K	10kΩ
M	MΩ	10M	10MΩ
W	Watt	1W	1 Watt

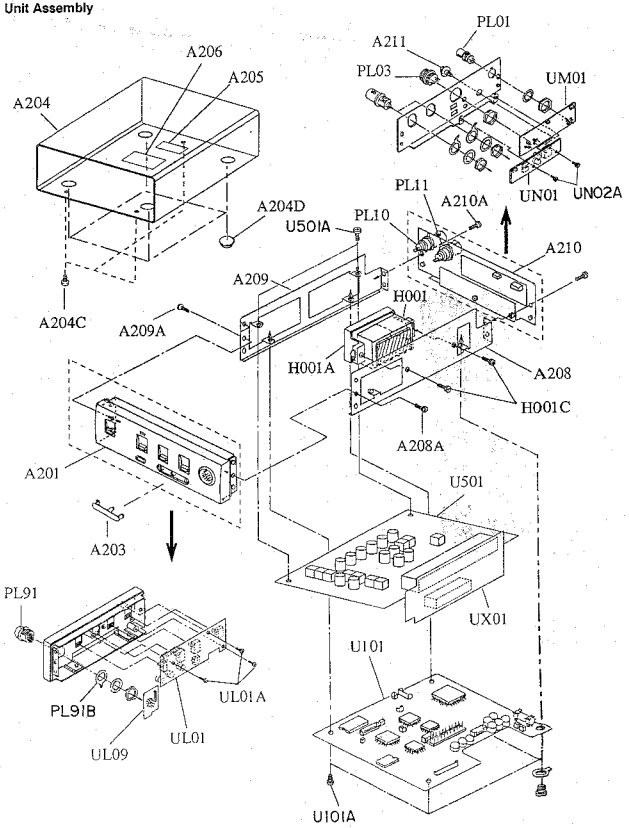
   - Resistance tolerance

Symbol	B	C	D	F	G	J	K	M
Tolerance %	±0.1	±0.25	±0.5	±1	±2	±5	±10	±20

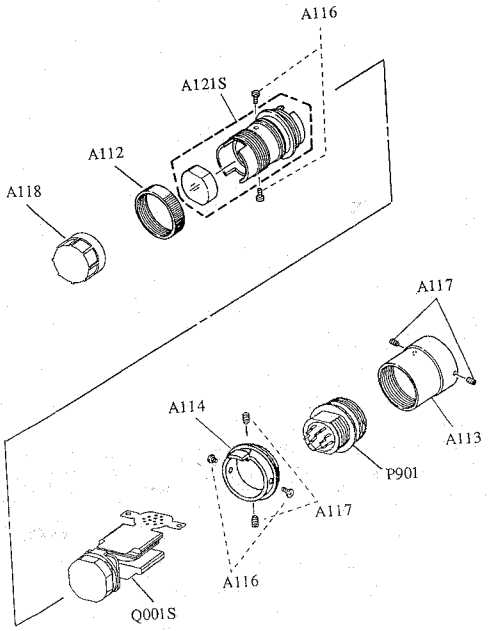
Ex. 470 J = 470Ω ± 5%

1. EXPLODED VIEWS

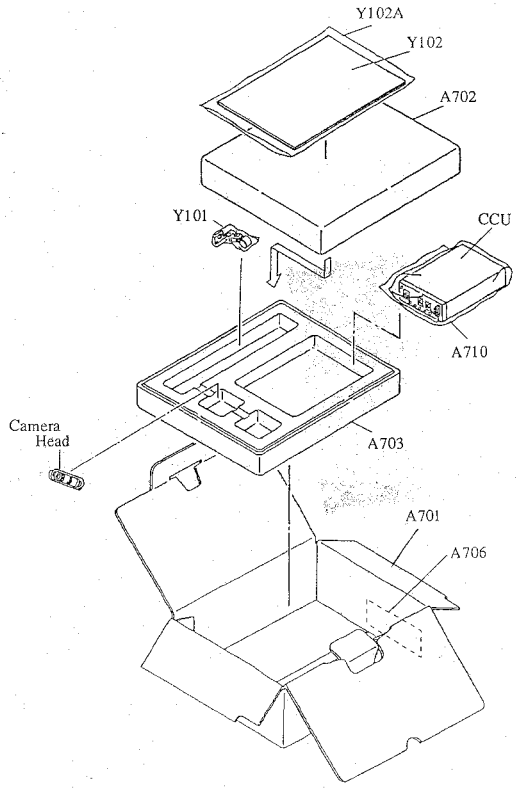
1-1. Unit Assembly



1-2. Camera Head Assembly



1-3. Packing Assembly



2. PARTS LIST

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
		- MECHANICAL PARTS -		
A112	70842576	Stopper		
A113	70842577	Ring Nut		
A116	70391625	Screw, 1.4x1.4mm		
A117	70391514	Screw, 1.7x2mm		
A118	70869217	Head Cover		
A121S	70153627	Optical Low Pass Filter Assy		
A201	70884122	Front Panel		
A203	70891033	Cap		
A204	70814417	Top Cover		
A204C	70391278	Screw, 2x5mm		
A204D	70860184	Leg		
A206	70974515	Caution Label		
A208A	70391278	Screw, 2x5mm		
A209A	70391276	Screw, 2x6mm		
A210	70817162	Back Cover		
A210A	70391276	Screw, 2x5mm		
A211	70881874	Knob		
A701	70917588	Case		
A702	70921425	Packing(U)		
A703	70921424	Packing(L)		
A710	70933137	Cover		
H001	70137239	DC-DC Converter		
H001C	70391261	Screw, 2x4mm		
P001	70165244	Receptacle	HR10A-10TR12	
PL01	70165208	Receptacle	HR10-7R-4PB	
PL03	70165249	Receptacle	TCS7848	
PL10	70165206	Receptacle	01K312	
PL11	70165206	Receptacle	01K312	
PL31	70165250	Receptacle	10A-10TR-12PE	
PL31B	70842578	Ground		
Q001S	70128644	CCD Assy		
R006A	24011164	Res, Chip	160K	J 1/20W
R006B	24011823	Res, Chip	82K	J 1/20W
R006C	24011512	Res, Chip	51K	J 1/20W
R006D	24011363	Res, Chip	36K	J 1/20W
R006E	24011273	Res, Chip	27K	J 1/20W
R006F	24011203	Res, Chip	20K	J 1/20W
R006G	24011163	Res, Chip	16K	J 1/20W
R006H	24011123	Res, Chip	12K	J 1/20W
R006J	24011103	Res, Chip	10K	J 1/20W
R006K	24011822	Res, Chip	8.2K	J 1/20W
U101A	70391436	Screw, 2x0.4x5mm		
U501A	70391436	Screw, 2x0.4x5mm		
UL01A	70391261	Screw, 2x4mm		
UN02A	70391436	Screw, 2x0.4x5mm		
Y101	70842574	Holder		
Y102	70971348	Owners Manual		
Y102A	70933020	Cover		

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
		- ELECTRICAL PARTS -	
■U101	70168997	P C Board Assy MAIN	
		- INTEGRATED CIRCUITS -	
IC206	70119259	IC	NJM3414M
IC207	70128465	IC	CXA1390R
Q350	B0525495	IC	TA7557P
IC351	A6030620	IC	TC7S04F
IC352	70119815	IC	MN6761S
Q353	B0487597	IC	TC74HC4053AF
IC354	A6030610	IC	TC7S02F
IC355	70128623	IC	MB620499
Q356	70128286	IC	CXD1250M
IC357	B0486685	IC	TC74HC4538AF
Q358	70128300	IC	CXD1159Q
Q359	70128578	IC	MB625431
IC360	A6030620	IC	TC7S04F
Q362	A6030130	IC	TC4S30F
Q363	A6030110	IC	TC4S66F
Q404	70118809	IC	HA11644MP
Q407	B0347240	IC	TA75339F
Q409	B0347240	IC	TA75339F
Q410	B0470524	IC	TC40528F
Q411	B0351515	IC	TA75902F
Q412	A6030110	IC	TC4S66F
Q413	A6030090	IC	TC4S11F
Q414	A6030090	IC	TC4S11F
QF05	B0372760	IC	TA78L007AP
		- TRANSISTORS -	
Q201	A6335580	Transistor,Chip	2SC2714-Y
Q202	A6335580	Transistor,Chip	2SC2714-Y
Q203	23314315	Transistor,Chip	XN4601
Q204	A6335470	Transistor,Chip	2SC2712-Y
Q301	A6335470	Transistor,Chip	2SC2712-Y
Q302	23314314	Transistor,Chip	XN4501
Q303	23314316	Transistor,Chip	XN5501
Q304	23314314	Transistor,Chip	XN4501
Q305	A6335470	Transistor,Chip	2SC2712-Y
Q306	A6335580	Transistor,Chip	2SC2714-Y
Q307	23314315	Transistor,Chip	XN4601
Q308	A6043330	Transistor	2SK209-Y
Q308	A6043330	Transistor	2SK209-Y
Q310	A6335470	Transistor,Chip	2SC2712-Y
Q311	23314315	Transistor,Chip	XN4601
Q361	23314315	Transistor,Chip	XN4601
Q401	23314317	Transistor,Chip	XN6501
Q402	23314317	Transistor,Chip	XN6501
Q403	23314315	Transistor,Chip	XN4601
Q405	23314315	Transistor,Chip	XN4601
Q408	A6541139	Transistor,Chip	2SA1162-Y
QF01	23314562	Transistor	2SC4176
QF02	23314558	Transistor	2SA1610
QF03	A6335580	Transistor,Chip	2SC2714-Y
QF04	A6335580	Transistor,Chip	2SC2714-Y
		- DIODES -	
D101	A7580310	Diode	3B261
D201	A7151100	Diode	1SS193
D301	A7152750	Diode	1SS226
D302	A7152750	Diode	1SS226
D303	A7151250	Diode,Chip	1SS193
D304	A7150800	Diode	1SS187
D305	A7111123	Diode	2220
D401	A7151100	Diode	1SS193
DF01	A7152750	Diode	1SS226
		- COILS -	
L201	23245858	Coil,Chip	TRF4100CC
L301	23245858	Coil,Chip	TRF4100CC
L302	23245858	Coil,Chip	TRF4100CC
L303	23245858	Coil,Chip	TRF4100CC
L304	23245858	Coil,Chip	TRF4100CC
L305	23245859	Coil,Chip	TRF4150CC
L306	23245858	Coil,Chip	TRF4100CC
L307	23245858	Coil,Chip	TRF4100CC
L308	23245858	Coil,Chip	TRF4100CC

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
L309	23245853	Coil,Chip	TRF418SCC	
L370	23245858	Coil,Chip	TRF4100CC	
L371	23245858	Coil,Chip	TRF4100CC	
L401	23245859	Coil,Chip	TRF4150CC	
L402	23245859	Coil,Chip	TRF4150CC	
LF01	23289150	Coil,Peaking	TRF4150AF	
LF02	23289150	Coil,Peaking	TRF4150AF	
LF03	23289471	Coil,Peaking	TRF4471AF	
LF04	23289150	Coil,Peaking	TRF4150AF	
		- CAPACITORS -		
C101	23743101	Cap,Electrolytic	100MF	M 10V
C102	24054760	Cap,Chip	0.1MF	Z 25V
C103	24742101	Cap,Electrolytic	100MF	M 6.3V
C104	24054760	Cap,Chip	0.1MF	Z 25V
C105	24743101	Cap,Electrolytic	100MF	M 10V
C106	24054760	Cap,Chip	0.1MF	Z 25V
C107	24744101	Cap,Electrolytic	100MF	M 16V
C108	24054760	Cap,Chip	0.1MF	Z 25V
C109	24745470	Cap,Electrolytic	47MF	M 25V
C110	24054760	Cap,Chip	0.1MF	Z 25V
C201	24088958	Cap,Tantalum	47MF	M 10V
C202	24292336	Cap,Tantalum,Chip	33MF	M 10V
C203	24054760	Cap,Chip	0.1MF	Z 25V
C204	24054760	Cap,Chip	0.1MF	Z 25V
C205	24290475	Cap,Tantalum,Chip	4.7MF	M 4V
C206	24295474	Cap,Tantalum,Chip	0.47MF	M 25V
C207	24290475	Cap,Tantalum,Chip	4.7MF	M 4V
C208	24085986	Cap,El,NP	10MF	M 10V
C209	24082291	Cap,Chip	1MF	Z 16V
C211	24094760	Cap,Chip	0.1MF	Z 25V
C212	24094760	Cap,Chip	0.1MF	Z 25V
C213	24094760	Cap,Chip	0.1MF	Z 25V
C214	24774101	Cap,Chip	100PF	J 50V
C215	24742220	Cap,Electrolytic	22MF	M 6.3V
C216	24094760	Cap,Chip	0.1MF	Z 25V
C217	24094760	Cap,Chip	0.1MF	Z 25V
C218	24094760	Cap,Chip	0.1MF	Z 25V
C219	24094760	Cap,Chip	0.1MF	Z 25V
C220	24094760	Cap,Chip	0.1MF	Z 25V
C221	24094760	Cap,Chip	0.1MF	Z 25V
C223	24082291	Cap,Chip	1MF	Z 16V
C224	24082291	Cap,Chip	1MF	Z 16V
C225	24094760	Cap,Chip	0.1MF	Z 25V
C301	24088959	Cap,Tantalum	22MF	M 16V
C302	24814473	Cap,Chip	0.047MF	Z 50V
C303	24094760	Cap,Chip	0.1MF	Z 25V
C304	24781511	Cap,Chip	510PF	J 50V
C305	24292475	Cap,Tantalum,Chip	4.7MF	M 10V
C306	24744100	Cap,Electrolytic	10MF	M 16V
C307	24088959	Cap,Tantalum	22MF	M 16V
C308	24774101	Cap,Chip	100PF	J 50V
C309	24094760	Cap,Chip	0.1MF	Z 25V
C310	24774270	Cap,Chip	27PF	J 50V
C311	24094760	Cap,Chip	0.1MF	Z 25V
C312	24094760	Cap,Chip	0.1MF	Z 25V
C313	24094760	Cap,Chip	0.1MF	Z 25V
C314	24292335	Cap,Tantalum,Chip	33MF	M 10V
C315	24774220	Cap,Chip	22PF	J 50V
C316	23118540	Varicap Diode	1T32TIS	
C317	24774150	Cap,Chip	15PF	J 50V
C318	24774100	Cap,Chip	10PF	D 50V
C319	24814473	Cap,Chip	0.047MF	Z 50V
C322	24774471	Cap,Chip	470PF	J 50V
C323	24815103	Cap,Chip	0.01MF	K 50V
C324	24094760	Cap,Chip	0.1MF	Z 25V
C325	24774391	Cap,Chip	390PF	J 50V
C326	24094760	Cap,Chip	0.1MF	Z 25V
C327	24094760	Cap,Chip	0.1MF	Z 25V
C328	24094760	Cap,Chip	0.1MF	Z 25V
C329	24094760	Cap,Chip	0.1MF	Z 25V
C330	24094760	Cap,Chip	0.1MF	Z 25V
C331	24774220	Cap,Chip	22PF	J 50V
C332	24094760	Cap,Chip	0.1MF	Z 25V
C333	24292336	Cap,Tantalum,Chip	33MF	M 10V
C334	24746479	Cap,Electrolytic	4.7MF	M 35V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
C335	24746479	Cap,Electrolytic	4.7MF	M 35V
C336	24743330	Cap,Electrolytic	33MF	M 10V
C337	24292475	Cap,Tantalum,Chip	4.7MF	M 10V
C338	24743330	Cap,Electrolytic	33MF	M 10V
C339	24094760	Cap,Chip	0.1MF	Z 25V
C340	24744220	Cap,Electrolytic	22MF	M 16V
C341	24094760	Cap,Chip	0.1MF	Z 25V
C342	24746160	Cap,Electrolytic	10MF	M 35V
C343	24094760	Cap,Chip	0.1MF	Z 25V
C344	24744100	Cap,Chip	10PF	D 50V
C345	24094760	Cap,Chip	0.1MF	Z 25V
C347	24774220	Cap,Chip	22PF	J 50V
C348	24774220	Cap,Chip	22PF	J 50V
C349	24774220	Cap,Chip	22PF	J 50V
C350	24774220	Cap,Chip	22PF	J 50V
C351	24774270	Cap,Chip	27PF	J 50V
C370	24292336	Cap,Tantalum,Chip	33MF	M 10V
C371	24774270	Cap,Chip	27PF	J 50V
C372	24774270	Cap,Chip	27PF	J 50V
C373	24774270	Cap,Chip	27PF	J 50V
C374	24292336	Cap,Tantalum,Chip	33MF	M 10V
C375	24774270	Cap,Chip	27PF	J 50V
C376	24774270	Cap,Chip	27PF	J 50V
C377	24094760	Cap,Chip	0.1MF	Z 25V
C378	24094760	Cap,Chip	0.1MF	Z 25V
C379	24815103	Cap,Chip	0.01MF	K 50V
C380	24774180	Cap,Chip	18PF	J 50V
C381	24774120	Cap,Chip	12PF	J 50V
C401	24743330	Cap,Electrolytic	33MF	M 10V
C402	24094760	Cap,Chip	0.1MF	Z 25V
C403	24094760	Cap,Chip	0.1MF	Z 25V
C404	24094760	Cap,Chip	0.1MF	Z 25V
C405	24743330	Cap,Electrolytic	33MF	M 10V
C406	24094760	Cap,Chip	0.1MF	Z 25V
C407	24742220	Cap,Electrolytic	22MF	M 6.3V
C408	24094760	Cap,Chip	0.1MF	Z 25V
C409	24094760	Cap,Chip	0.1MF	Z 25V
C410	24094760	Cap,Chip	0.1MF	Z 25V
C411	24815103	Cap,Chip	0.01MF	K 50V
C412	24094760	Cap,Chip	0.1MF	Z 25V
C413	24744100	Cap,Electrolytic	10MF	M 16V
C415	24094760	Cap,Chip	0.1MF	Z 25V
C416	24094760	Cap,Chip	0.1MF	Z 25V
C417	24815471	Cap,Chip	470PF	K 50V
C418	24092291	Cap,Chip	1MF	Z 16V
C419	24092291	Cap,Chip	1MF	Z 16V
C420	24742220	Cap,Electrolytic	22MF	M 6.3V
C424	24293105	Cap,Tantalum,Chip	1MF	M 16V
C425	24293105	Cap,Tantalum,Chip	1MF	M 16V
C426	24293105	Cap,Tantalum,Chip	1MF	M 16V
C427	24293105	Cap,Tantalum,Chip	1MF	M 16V
C428	24094760	Cap,Chip	0.1MF	Z 25V
C429	24094760	Cap,Chip	0.1MF	Z 25V
C430	24815103	Cap,Chip	0.01MF	K 50V
C431	24815103	Cap,Chip	0.01MF	K 50V
C432	24094760	Cap,Chip	0.1MF	Z 25V
C433	24094760	Cap,Chip	0.1MF	Z 25V
C434	24094760	Cap,Chip	0.1MF	Z 25V
C435	24094760	Cap,Chip	0.1MF	Z 25V
CF01	24742101	Cap,Electrolytic	100MF	M 6.3V
CF02	24094760	Cap,Chip	0.1MF	Z 25V
CF03	24742101	Cap,Electrolytic	100MF	M 6.3V
CF04	24744101	Cap,Electrolytic	100MF	M 16V
CF05	24094760	Cap,Chip	0.1MF	Z 25V
CF06	24744101	Cap,Electrolytic	100MF	M 16V
CF07	24094760	Cap,Chip	0.1MF	Z 25V
CF08	24744470	Cap,Electrolytic	47MF	M 16V
CF09	24094760	Cap,Chip	0.1MF	Z 25V
CF10	24744470	Cap,Electrolytic	47MF	M 16V
CF11	24744470	Cap,Electrolytic	47MF	M 16V
CF12	24743330	Cap,Electrolytic	33MF	M 10V
CF13	24094760	Cap,Chip	0.1MF	Z 25V
CF14	24094760	Cap,Chip	0.1MF	Z 25V
CF15	24094760	Cap,Chip	0.1MF	Z 25V
CF16	24094760	Cap,Chip	0.1MF	Z 25V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CF17	24744101	Cap,Electrolytic	100MF	M 16V
CF18	24744101	Cap,Electrolytic	100MF	M 16V
CF19	24743101	Cap,Electrolytic	100MF	M 10V
CF20	24744101	Cap,Electrolytic	100MF	M 16V
CV31	24093917	Cap,Variable,Chip	20PF	
		- RESISTORS -		
R101	24000468	Res,Chip	3.9	J 1/2W
R102	24000468	Res,Chip	3.9	J 1/2W
R201	24872221	Res,Chip	220	J 1/16W
R203	24872102	Res,Chip	1K	J 1/16W
R204	24872102	Res,Chip	1K	J 1/16W
R205	24872102	Res,Chip	1K	J 1/16W
R206	24872332	Res,Chip	3.3K	J 1/16W
R207	24872912	Res,Chip	9.1K	J 1/16W
R208	24872433	Res,Chip	43K	J 1/16W
R209	24872102	Res,Chip	1K	J 1/16W
R210	24872123	Res,Chip	12K	J 1/16W
R211	24872104	Res,Chip	100K	J 1/16W
R212	24872273	Res,Chip	27K	J 1/16W
R213	24872333	Res,Chip	33K	J 1/16W
R214	24872473	Res,Chip	47K	J 1/16W
R215	24872564	Res,Chip	560K	J 1/16W
R216	24872303	Res,Chip	30K	J 1/16W
R217	24872562	Res,Chip	5.6K	J 1/16W
R218	24872752	Res,Chip	7.5K	J 1/16W
R219	24872102	Res,Chip	1K	J 1/16W
R220	24872101	Res,Chip	100	J 1/16W
R221	24872472	Res,Chip	4.7K	J 1/16W
R222	24872562	Res,Chip	5.6K	J 1/16W
R223	24872472	Res,Chip	4.7K	J 1/16W
R224	24872472	Res,Chip	4.7K	J 1/16W
R225	70424076	Jumper,Chip	0	
R301	24872124	Res,Chip	120K	J 1/16W
R302	24872474	Res,Chip	470K	J 1/16W
R303	24872123	Res,Chip	12K	J 1/16W
R304	24872203	Res,Chip	20K	J 1/16W
R305	24872750	Res,Chip	75	J 1/16W
R306	24872333	Res,Chip	33K	J 1/16W
R307	24872223	Res,Chip	22K	J 1/16W
R308	24872332	Res,Chip	3.3K	J 1/16W
R309	24872222	Res,Chip	2.2K	J 1/16W
R310	24872471	Res,Chip	470	J 1/16W
R311	24872911	Res,Chip	910	J 1/16W
R312	24872272	Res,Chip	2.7K	J 1/16W
R313	24872562	Res,Chip	5.6K	J 1/16W
R314	24872362	Res,Chip	3.6K	J 1/16W
R315	24872471	Res,Chip	470	J 1/16W
R316	24872471	Res,Chip	470	J 1/16W
R317	24872101	Res,Chip	100	J 1/16W
R318	24872102	Res,Chip	1K	J 1/16W
R319	24872182	Res,Chip	1.8K	J 1/16W
R320	24872561	Res,Chip	560	J 1/16W
R321	24872911	Res,Chip	910	J 1/16W
R322	24872182	Res,Chip	1.8K	J 1/16W
R323	24872184	Res,Chip	180K	J 1/16W
R324	24872153	Res,Chip	15K	J 1/16W
R325	24872472	Res,Chip	4.7K	J 1/16W
R326	24872103	Res,Chip	10K	J 1/16W
R327	24872103	Res,Chip	10K	J 1/16W
R328	24872103	Res,Chip	10K	J 1/16W
R329	24872224	Res,Chip	220K	J 1/16W
R330	24872472	Res,Chip	4.7K	J 1/16W
R331	24872472	Res,Chip	4.7K	J 1/16W
R332	24872241	Res,Chip	240	J 1/16W
R333	24872272	Res,Chip	2.7K	J 1/16W
R334	24872272	Res,Chip	2.7K	J 1/16W
R335	24872683	Res,Chip	68K	J 1/16W
R336	24872182	Res,Chip	1.8K	J 1/16W
R337	24872511	Res,Chip	510	J 1/16W
R338	24872222	Res,Chip	2.2K	J 1/16W
R339	24872911	Res,Chip	910	J 1/16W
R340	24872362	Res,Chip	3.9K	J 1/16W
R341	24872332	Res,Chip	3.3K	J 1/16W
R342	24872752	Res,Chip	7.5K	J 1/16W
R343	24872182	Res,Chip	1.8K	J 1/16W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
R344	24872122	Res,Chip	1.2K	J 1/16W
R345	24872272	Res,Chip	2.7K	J 1/16W
R346	24872101	Res,Chip	100	J 1/16W
R347	24872272	Res,Chip	2.7K	J 1/16W
R348	24872153	Res,Chip	15K	J 1/16W
R349	24872103	Res,Chip	10K	J 1/16W
R350	24872272	Res,Chip	2.7K	J 1/16W
R351	24872471	Res,Chip	470	J 1/16W
R352	24872105	Res,Chip	1M	J 1/16W
R353	24872101	Res,Chip	100	J 1/16W
R354	24872101	Res,Chip	100	J 1/16W
R355	24872101	Res,Chip	100	J 1/16W
R356	24872101	Res,Chip	100	J 1/16W
R357	24872101	Res,Chip	100	J 1/16W
R358	24872101	Res,Chip	100	J 1/16W
R359	24872682	Res,Chip	6.8K	J 1/16W
R360	24872113	Res,Chip	11K	J 1/16W
R361	24872103	Res,Chip	10K	J 1/16W
R362	24872105	Res,Chip	1M	J 1/16W
R363	24872222	Res,Chip	2.2K	J 1/16W
R364	24872203	Res,Chip	20K	J 1/16W
R365	24872101	Res,Chip	100	J 1/16W
R366	24872271	Res,Chip	270	J 1/16W
R367	24872100	Res,Chip	10	J 1/16W
R368	24872151	Res,Chip	150	J 1/16W
R369	24872100	Res,Chip	10	J 1/16W
R370	24872105	Res,Chip	1M	J 1/16W
R371	24872222	Res,Chip	2.2K	J 1/16W
R372	24872222	Res,Chip	2.2K	J 1/16W
R373	24872222	Res,Chip	2.2K	J 1/16W
R374	24872101	Res,Chip	100	J 1/16W
R375	24872101	Res,Chip	100	J 1/16W
R376	24872511	Res,Chip	510	J 1/16W
R377	24872101	Res,Chip	100	J 1/16W
R378	24872101	Res,Chip	100	J 1/16W
R379	24872471	Res,Chip	470	J 1/16W
R380	24872105	Res,Chip	1M	J 1/16W
R381	24872471	Res,Chip	470	J 1/16W
R382	24872105	Res,Chip	1M	J 1/16W
R385	24872472	Res,Chip	4.7K	J 1/16W
R390	24872100	Res,Chip	10	J 1/16W
R391	24872100	Res,Chip	10	J 1/16W
R392	24872100	Res,Chip	10	J 1/16W
R393	24872182	Res,Chip	1.8K	J 1/16W
R394	24872102	Res,Chip	1K	J 1/16W
R395	24872472	Res,Chip	4.7K	J 1/16W
R396	24872272	Res,Chip	2.7K	J 1/16W
R397	24872222	Res,Chip	2.2K	J 1/16W
R398	24872101	Res,Chip	100	J 1/16W
R401	24872562	Res,Chip	5.6K	J 1/16W
R402	24872224	Res,Chip	220K	J 1/16W
R403	24872392	Res,Chip	3.9K	J 1/16W
R404	24872182	Res,Chip	1.8K	J 1/16W
R405	24872182	Res,Chip	1.8K	J 1/16W
R406	24872182	Res,Chip	1.8K	J 1/16W
R407	24872392	Res,Chip	3.9K	J 1/16W
R408	24872182	Res,Chip	1.8K	J 1/16W
R409	24872222	Res,Chip	2.2K	J 1/16W
R410	24872222	Res,Chip	2.2K	J 1/16W
R411	24872182	Res,Chip	1.8K	J 1/16W
R412	24872182	Res,Chip	1.8K	J 1/16W
R413	24872472	Res,Chip	4.7K	J 1/16W
R414	24872182	Res,Chip	1.8K	J 1/16W
R415	24872222	Res,Chip	2.2K	J 1/16W
R416	24872332	Res,Chip	3.3K	J 1/16W
R417	24872273	Res,Chip	27K	J 1/16W
R418	24872563	Res,Chip	56K	J 1/16W
R419	24872563	Res,Chip	56K	J 1/16W
R421	24872273	Res,Chip	27K	J 1/16W
R422	24872273	Res,Chip	27K	J 1/16W
R425	24872393	Res,Chip	39K	J 1/16W
R426	24872394	Res,Chip	390K	J 1/16W
R427	24872273	Res,Chip	27K	J 1/16W
R428	24872363	Res,Chip	36K	J 1/16W
R429	24872273	Res,Chip	27K	J 1/16W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
R430	24872394	Res,Chip	390K	J 1/16W
R432	24872123	Res,Chip	12K	J 1/16W
R433	24872472	Res,Chip	4.7K	J 1/16W
R434	24872222	Res,Chip	2.2K	J 1/16W
R435	24872824	Res,Chip	820K	J 1/16W
R436	24872105	Res,Chip	1M	J 1/16W
R437	24872104	Res,Chip	100K	J 1/16W
R438	24872153	Res,Chip	15K	J 1/16W
R439	24872624	Res,Chip	620K	J 1/16W
R440	24872105	Res,Chip	1M	J 1/16W
R441	24872394	Res,Chip	390K	J 1/16W
R442	24872473	Res,Chip	47K	J 1/16W
R443	24872105	Res,Chip	1M	J 1/16W
R444	24872105	Res,Chip	1M	J 1/16W
R445	24872103	Res,Chip	10K	J 1/16W
R446	24872105	Res,Chip	1M	J 1/16W
R447	24872105	Res,Chip	1M	J 1/16W
R448	24872475	Res,Chip	4.7M	K 1/16W
R449	24872475	Res,Chip	4.7M	K 1/16W
R450	24872393	Res,Chip	39K	J 1/16W
R451	24872105	Res,Chip	1M	J 1/16W
R452	24872473	Res,Chip	47K	J 1/16W
R453	24872303	Res,Chip	30K	J 1/16W
R454	24872223	Res,Chip	22K	J 1/16W
R455	24872153	Res,Chip	15K	J 1/16W
R456	24872475	Res,Chip	4.7M	K 1/16W
R457	24872153	Res,Chip	15K	J 1/16W
R458	24872153	Res,Chip	15K	J 1/16W
R459	24872153	Res,Chip	15K	J 1/16W
R460	24872304	Res,Chip	300K	J 1/16W
R462	24872204	Res,Chip	200K	J 1/16W
R463	24872473	Res,Chip	47K	J 1/16W
R464	24872103	Res,Chip	10K	J 1/16W
R465	24872562	Res,Chip	5.6K	J 1/16W
R466	24872304	Res,Chip	300K	J 1/16W
R467	24872104	Res,Chip	100K	J 1/16W
R468	24872514	Res,Chip	510K	J 1/16W
R469	24872754	Res,Chip	750K	J 1/16W
R470	24872104	Res,Chip	100K	J 1/16W
R471	24872304	Res,Chip	300K	J 1/16W
R472	24872333	Res,Chip	33K	J 1/16W
R473	24872204	Res,Chip	200K	J 1/16W
R474	24872152	Res,Chip	1.5K	J 1/16W
R475	24872104	Res,Chip	100K	J 1/16W
R476	24872152	Res,Chip	1.5K	J 1/16W
R477	24872514	Res,Chip	510K	J 1/16W
R478	24872684	Res,Chip	680K	J 1/16W
R479	24872105	Res,Chip	1M	J 1/16W
R480	24872624	Res,Chip	620K	J 1/16W
R481	24872105	Res,Chip	1M	J 1/16W
R482	24872223	Res,Chip	22K	J 1/16W
R483	24872562	Res,Chip	5.6K	J 1/16W
R484	24872102	Res,Chip	1K	J 1/16W
R485	24872124	Res,Chip	120K	J 1/16W
R486	24872753	Res,Chip	75K	J 1/16W
R487	24872102	Res,Chip	1K	J 1/16W
RF01	24872102	Res,Chip	1K	J 1/16W
RF02	24872102	Res,Chip	1K	J 1/16W
RF03	24872229	Res,Chip	2.2	J 1/16W
RF04	24872229	Res,Chip	2.2	J 1/16W
RF05	24872510	Res,Chip	51	J 1/16W
RF06	24872472	Res,Chip	4.7K	J 1/16W
RF07	24872751	Res,Chip	750	J 1/16W
RF08	24872560	Res,Chip	56	J 1/16W
RF09	24872222	Res,Chip	2.2K	J 1/16W
RF10	24356152	Res,Carbon	1.5K	J 1/8W
RF11	24872560	Res,Chip	56	J 1/16W
RF12	24356152	Res,Carbon	1.5K	J 1/8W
RV21	70421484	Res,Variable	22K	
RV31	70421483	Res,Variable	10K	
RV32	70421484	Res,Variable	22K	
RV41	70421490	Res,Variable	220K	
RV42	70421488	Res,Variable	100K	
		- MISCELLANEOUS		
F101	23144948	Fuse,1.0A		

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
F101A	23185102	Fuse Holder		
P201	23367185	Plug	10P	
P202	23367465	Plug, 2P		
P203	23367465	Plug, 2P		
P301	23367471	Plug	8P	
P304	23367465	Plug, 2P		
P401	23367459	Plug, 5P		
PF01	23367478	Plug, 15P		
W202	70179231	Wire		
W302	70178228	Wire		
Z301	70132280	Crystal		
Z301A	70860084	Spacer		
Z302	70132279	Crystal		
■US01	70188898	P C Board Assy	VIDEO	
		- INTEGRATED CIRCUITS -		
IC500	70129488	IC	CXL1507M	
IC501	70128486	IC	CXA1391R	
IC502	70128487	IC	CXA1392R	
IC503	70128489	IC	CXL5504M	
IC504	70128488	IC	CXL5504M	
IC505	70128489	IC	CXL5504M	
IC506	A8030630	IC	TC7S08F	
QS07	70128490	IC	MM1031M	
QS08	70128490	IC	MM1031M	
QS09	70128503	IC	MM1041XMR	
		- TRANSISTORS -		
QS10	23314350	Transistor,Chip	XN6401	
QS11	A6541130	Transistor,Chip	2SA1162-Y	
QS12	A6541130	Transistor,Chip	2SA1162-Y	
QS13	23314320	Transistor,Chip	XN1501	
QS14	23314320	Transistor,Chip	XN1501	
QS15	23314317	Transistor,Chip	XN6501	
QS16	23314315	Transistor,Chip	XN4601	
QS17	23314320	Transistor,Chip	XN1501	
QS18	23314508	Transistor,Chip	XN1401	
QS19	A6335580	Transistor,Chip	2SC2714-Y	
QS22	A6541130	Transistor,Chip	2SA1162-Y	
QS23	A6541130	Transistor,Chip	2SA1162-Y	
QS24	23314350	Transistor,Chip	XN6401	
QS25	23314317	Transistor,Chip	XN6501	
QS26	23314317	Transistor,Chip	XN6501	
QS27	23314508	Transistor,Chip	XN1401	
QS28	23314350	Transistor,Chip	XN6401	
QS29	23314317	Transistor,Chip	XN6501	
QS30	23314320	Transistor,Chip	XN1501	
QS31	23314317	Transistor,Chip	XN6501	
		- COILS -		
LS00	23245859	Coil,Chip	TRF4156CC	
LS01	23245859	Coil,Chip	TRF4150CC	
LS02	23245860	Coil,Chip	TRF4580CC	
LS03	23245859	Coil,Chip	TRF4150CC	
LS04	23245708	Coil,Chip	TRF4271CS	
LS05	23288271	Coil,Peaking	TRF4271AF	
LS08	23245850	Coil,Chip	TRF4150CC	
		- CAPACITORS -		
CS00	24088958	Cap,Tantalum	47MF	M 10V
CS01	24094760	Cap,Chip	0.1MF	Z 25V
CS02	24092291	Cap,Chip	1MF	Z 16V
CS03	24092291	Cap,Chip	1MF	Z 16V
CS04	24092291	Cap,Chip	1MF	Z 16V
CS05	24094760	Cap,Chip	0.1MF	Z 25V
CS06	24092291	Cap,Chip	1MF	Z 16V
CS07	24094760	Cap,Chip	0.1MF	Z 25V
CS08	24094760	Cap,Chip	0.1MF	Z 25V
CS09	24092291	Cap,Chip	1MF	Z 16V
CS10	24094708	Cap,Chip	0.1MF	Z 25V
CS11	24774220	Cap,Chip	22PF	J 50V
CS12	24094760	Cap,Chip	0.1MF	Z 25V
CS13	24094760	Cap,Chip	0.1MF	Z 25V
CS14	24094760	Cap,Chip	0.1MF	Z 25V
CS15	24094760	Cap,Chip	0.1MF	Z 25V
CS16	24092291	Cap,Chip	1MF	Z 16V
CS17	24092291	Cap,Chip	1MF	Z 16V
CS18	24094760	Cap,Chip	0.1MF	Z 25V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CS19	24094760	Cap,Chip	0.1MF	Z 25V
CS20	24094760	Cap,Chip	0.1MF	Z 25V
CS21	24094760	Cap,Chip	0.1MF	Z 25V
CS22	24094760	Cap,Chip	0.1MF	Z 25V
CS23	24094760	Cap,Chip	0.1MF	Z 25V
CS24	24094760	Cap,Chip	0.1MF	Z 25V
CS25	24094760	Cap,Chip	0.1MF	Z 25V
CS26	24094760	Cap,Chip	0.1MF	Z 25V
CS27	24088958	Cap,Tantalum	47MF	M 10V
CS28	24094760	Cap,Chip	0.1MF	Z 25V
CS29	24094760	Cap,Chip	0.1MF	Z 25V
CS30	24774820	Cap,Chip	82PF	J 50V
CS31	24774330	Cap,Chip	33PF	J 50V
CS32	24774470	Cap,Chip	47PF	J 50V
CS33	24815103	Cap,Chip	0.01MF	K 50V
CS34	24815103	Cap,Chip	0.01MF	K 50V
CS35	24815103	Cap,Chip	0.01MF	K 50V
CS36	24815103	Cap,Chip	0.01MF	K 50V
CS37	24094760	Cap,Chip	0.1MF	Z 25V
CS38	24094760	Cap,Chip	0.1MF	Z 25V
CS39	24815103	Cap,Chip	0.01MF	K 50V
CS40	24094760	Cap,Chip	0.1MF	Z 25V
CS41	24774120	Cap,Chip	12PF	J 50V
CS45	24094760	Cap,Chip	0.1MF	Z 25V
CS46	24094760	Cap,Chip	0.1MF	Z 25V
CS47	24744100	Cap,Electrolytic	10MF	M 16V
CS48	24094760	Cap,Chip	0.1MF	Z 25V
CS49	24094760	Cap,Chip	0.1MF	Z 25V
CS50	24094760	Cap,Chip	0.1MF	Z 25V
CS51	24094760	Cap,Chip	0.1MF	Z 25V
CS52	24094760	Cap,Chip	0.1MF	Z 25V
CS53	24094760	Cap,Chip	0.1MF	Z 25V
CS54	24094760	Cap,Chip	0.1MF	Z 25V
CS55	24815103	Cap,Chip	0.01MF	K 50V
CS56	24094760	Cap,Chip	0.1MF	Z 25V
CS57	24815103	Cap,Chip	0.01MF	K 50V
CS58	24094760	Cap,Chip	0.1MF	Z 25V
CS59	24094760	Cap,Chip	0.1MF	Z 25V
CS60	24088958	Cap,Tantalum	47MF	M 10V
CS61	24092291	Cap,Chip	1MF	Z 16V
CS62	24094760	Cap,Chip	0.1MF	Z 25V
CS63	24815103	Cap,Chip	0.01MF	K 50V
CS64	24092291	Cap,Chip	1MF	Z 16V
CS65	24092291	Cap,Chip	1MF	Z 16V
CS66	24094760	Cap,Chip	0.1MF	Z 25V
CS67	24815103	Cap,Chip	0.01MF	K 50V
CS68	24092291	Cap,Chip	1MF	Z 16V
CS69	24774111	Cap,Chip	110PF	J 50V
CS70	24774111	Cap,Chip	110PF	J 50V
CS71	24742220	Cap,Electrolytic	22MF	M 6.3V
CS72	24094760	Cap,Chip	0.1MF	Z 25V
CS73	24094760	Cap,Chip	0.1MF	Z 25V
CS74	24094760	Cap,Chip	0.1MF	Z 25V
CS75	24092261	Cap,Chip	1MF	Z 16V
CS76	24094760	Cap,Chip	0.1MF	Z 25V
CS77	24815103	Cap,Chip	0.01MF	K 50V
CS78	24092291	Cap,Chip	1MF	Z 16V
CS79	24774111	Cap,Chip	110PF	J 50V
CS80	24774111	Cap,Chip	110PF	J 50V
CS81	24742220	Cap,Electrolytic	22MF	M 6.3V
CS84	24774220	Cap,Chip	22PF	J 50V
CS85	24094760	Cap,Chip	0.1MF	Z 25V
CS86	24088958	Cap,Tantalum	47MF	M 10V
CS87	24088958	Cap,Tantalum	47MF	M 10V
CS88	24774101	Cap,Chip	100PF	J 50V
CS89	24092291	Cap,Chip	1MF	Z 16V
CS90	24290475	Cap,Tantalum,Chip	4.7MF	M 4V
CS91	24092291	Cap,Chip	1MF	Z 16V
CS92	24092291	Cap,Chip	1MF	Z 16V
CS93	24094760	Cap,Chip	0.1MF	Z 25V
CS94	24094760	Cap,Chip	0.1MF	Z 25V
CS95	24094760	Cap,Chip	0.1MF	Z 25V
CS96	24748004	Cap,Electrolytic	470MF	M 6.3V
CS97	24748004	Cap,Electrolytic	470MF	M 6.3V
CS98	24094760	Cap,Chip	0.1MF	Z 25V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
C589	24094760	Cap, Chip	0.1MF	Z 25V
C802	24094780	Cap, Chip	0.1MF	Z 25V
C803	24094760	Cap, Chip	0.1MF	Z 25V
		- RESISTORS -		
R500	24872222	Res, Chip	2.2K	J 1/16W
R501	24872222	Res, Chip	2.2K	J 1/16W
R502	24872222	Res, Chip	2.2K	J 1/16W
R503	24872102	Res, Chip	1K	J 1/16W
R504	24872102	Res, Chip	1K	J 1/16W
R505	24872102	Res, Chip	1K	J 1/16W
R506	24872392	Res, Chip	3.9K	J 1/16W
R507	24872102	Res, Chip	1K	J 1/16W
R508	24872153	Res, Chip	15K	J 1/16W
R509	24872123	Res, Chip	12K	J 1/16W
R510	24872153	Res, Chip	15K	J 1/16W
R511	24872473	Res, Chip	47K	J 1/16W
R512	24872123	Res, Chip	12K	J 1/16W
R513	24872103	Res, Chip	10K	J 1/16W
R514	24872562	Res, Chip	5.6K	J 1/16W
R515	24872123	Res, Chip	12K	J 1/16W
R516	24872103	Res, Chip	10K	J 1/16W
R517	24872103	Res, Chip	10K	J 1/16W
R518	24872822	Res, Chip	8.2K	J 1/16W
R519	24872822	Res, Chip	8.2K	J 1/16W
R520	24872322	Res, Chip	6.2K	J 1/16W
R521	24872113	Res, Chip	11K	J 1/16W
R522	24872183	Res, Chip	18K	J 1/16W
R523	24872103	Res, Chip	10K	J 1/16W
R524	24872822	Res, Chip	8.2K	J 1/16W
R525	24872103	Res, Chip	10K	J 1/16W
R526	24872222	Res, Chip	2.2K	J 1/16W
R527	24872821	Res, Chip	820	J 1/16W
R528	24872223	Res, Chip	22K	J 1/16W
R529	24872222	Res, Chip	2.2K	J 1/16W
R530	24872222	Res, Chip	2.2K	J 1/16W
R531	24872102	Res, Chip	1K	J 1/16W
R532	24872392	Res, Chip	3.9K	J 1/16W
R533	24872182	Res, Chip	1.8K	J 1/16W
R534	24872392	Res, Chip	3.9K	J 1/16W
R535	24872102	Res, Chip	1K	J 1/16W
R536	24872182	Res, Chip	1.8K	J 1/16W
R537	24872152	Res, Chip	1.5K	J 1/16W
R538	24872152	Res, Chip	1.5K	J 1/16W
R539	24872821	Res, Chip	820	J 1/16W
R540	24872102	Res, Chip	1K	J 1/16W
R541	24872471	Res, Chip	470	J 1/16W
R542	24872102	Res, Chip	1K	J 1/16W
R543	24872102	Res, Chip	1K	J 1/16W
R544	24872152	Res, Chip	1.5K	J 1/16W
R545	24000593	Res, Chip	10K	F 1/16W
R546	24000593	Res, Chip	10K	F 1/16W
R547	24872122	Res, Chip	1.2K	J 1/16W
R548	24872122	Res, Chip	1.2K	J 1/16W
R549	24872102	Res, Chip	1K	J 1/16W
R550	24872102	Res, Chip	1K	J 1/16W
R551	24000593	Res, Chip	10K	F 1/16W
R552	24872221	Res, Chip	220	J 1/16W
R553	24000593	Res, Chip	10K	F 1/16W
R554	24872102	Res, Chip	1K	J 1/16W
R555	24872102	Res, Chip	1K	J 1/16W
R556	24872112	Res, Chip	1.1K	J 1/16W
R559	24872152	Res, Chip	1.5K	J 1/16W
R561	24872822	Res, Chip	8.2K	J 1/16W
R564	24872103	Res, Chip	10K	J 1/16W
R565	24872473	Res, Chip	47K	J 1/16W
R566	24872332	Res, Chip	3.3K	J 1/16W
R567	24872512	Res, Chip	5.1K	J 1/16W
R568	24872103	Res, Chip	10K	J 1/16W
R569	24872102	Res, Chip	1K	J 1/16W
R570	24872103	Res, Chip	10K	J 1/16W
R573	24872123	Res, Chip	12K	J 1/16W
R576	24872123	Res, Chip	12K	J 1/16W
R577	24872103	Res, Chip	10K	J 1/16W
R578	24872223	Res, Chip	22K	J 1/16W
R579	24872105	Res, Chip	1M	J 1/16W

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
R580	24872222	Res, Chip	2.2K	J 1/16W
R581	24872102	Res, Chip	1K	J 1/16W
R582	24872102	Res, Chip	1K	J 1/16W
R583	24872302	Res, Chip	3K	J 1/16W
R584	24872105	Res, Chip	1M	J 1/16W
R585	24872222	Res, Chip	2.2K	J 1/16W
R586	24872102	Res, Chip	1K	J 1/16W
R587	24872302	Res, Chip	3K	J 1/16W
R588	24872152	Res, Chip	1.5K	J 1/16W
R589	24872112	Res, Chip	1.1K	J 1/16W
R590	24872102	Res, Chip	1K	J 1/16W
R591	24872302	Res, Chip	3K	J 1/16W
R592	24872222	Res, Chip	2.2K	J 1/16W
R593	24872472	Res, Chip	4.7K	J 1/16W
R594	24872272	Res, Chip	2.7K	J 1/16W
R595	24872221	Res, Chip	220	J 1/16W
R596	24872103	Res, Chip	10K	J 1/16W
R597	24872102	Res, Chip	1K	J 1/16W
R598	24872102	Res, Chip	1K	J 1/16W
R599	24872302	Res, Chip	3K	J 1/16W
R600	24872105	Res, Chip	1M	J 1/16W
R601	24872222	Res, Chip	2.2K	J 1/16W
R602	24872102	Res, Chip	1K	J 1/16W
R603	24872302	Res, Chip	3K	J 1/16W
R604	24872152	Res, Chip	1.5K	J 1/16W
R605	24872112	Res, Chip	1.1K	J 1/16W
R606	24872102	Res, Chip	1K	J 1/16W
R607	24872102	Res, Chip	1K	J 1/16W
R608	24872822	Res, Chip	8.2K	J 1/16W
R609	24872302	Res, Chip	3K	J 1/16W
R612	24872102	Res, Chip	1K	J 1/16W
R613	24872102	Res, Chip	1K	J 1/16W
R614	24872332	Res, Chip	3.3K	J 1/16W
R615	24872102	Res, Chip	1K	J 1/16W
R617	24872103	Res, Chip	10K	J 1/16W
R618	24872222	Res, Chip	2.2K	J 1/16W
R619	24000593	Res, Chip	10K	F 1/16W
R620	24872102	Res, Chip	1K	J 1/16W
R621	24872152	Res, Chip	1.5K	J 1/16W
R622	24872102	Res, Chip	1K	J 1/16W
R623	24872750	Res, Chip	75	J 1/16W
R624	24872750	Res, Chip	75	J 1/16W
R625	24872680	Res, Chip	68	J 1/16W
R629	24872104	Res, Chip	100K	J 1/16W
R630	24872432	Res, Chip	4.3K	J 1/16W
R631	24872562	Res, Chip	5.6K	J 1/16W
R632	24872222	Res, Chip	2.2K	J 1/16W
R633	24872562	Res, Chip	5.6K	J 1/16W
R634	24872232	Res, Chip	3.3K	J 1/16W
RV51	70421484	Res, Variable	22K	
RV52	70421484	Res, Variable	22K	
RV53	70421484	Res, Variable	22K	
RV54	70421484	Res, Variable	22K	
RV55	70421484	Res, Variable	22K	
RV56	70421484	Res, Variable	22K	
RV57	70421484	Res, Variable	22K	
RV58	70421484	Res, Variable	22K	
RV59	70421484	Res, Variable	22K	
RV60	70421484	Res, Variable	22K	
RV61	70421484	Res, Variable	22K	
RV62	70421484	Res, Variable	22K	
RV64	70421484	Res, Variable	22K	
RV65	70421484	Res, Variable	22K	
		- MISCELLANEOUS -		
P501	70164284	Connector		
Z501	70132393	Filter		
Z502	70132394	Filter		
Z503	70132391	Delay Line		
Z504	70132386	Filter		
Z505	70132334	Delay Line		
Z507	70132329	Filter		
■UL01	70186899	P C Board Assy - TRANSISTORS -	FRONT	
Q601	A6004040	Transistor, Chip	RN1404	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
		- DIODES -		
DM01	A8690540	Diode,LED	TLUR163	
DM02	A8690640	Diode,LED	TLUG163	
		- COILS -		
LM01	23289150	Coil,Peaking	TRF4150AF	
		- CAPACITORS -		
CM01	24094760	Cap,Chip	0.1MF	Z 25V
CM02	24088958	Cap,Tantalum	47MF	M 10V
		- RESISTORS -		
RM01	24872104	Res,Chip	100K	J 1/16W
RM02	24872102	Res,Chip	1K	J 1/16W
RM03	24872104	Res,Chip	100K	J 1/16W
RM04	70424075	Jumper,Chip	0	
RM05	24872562	Res,Chip	5.6K	J 1/16W
RM06	24872222	Res,Chip	2.2K	J 1/16W
RM07	24872222	Res,Chip	2.2K	J 1/16W
RM08	24872104	Res,Chip	100K	J 1/16W
RM09	24872102	Res,Chip	1K	J 1/16W
RM10	24872104	Res,Chip	100K	J 1/16W
RM11	24872163	Res,Chip	16K	J 1/16W
RM12	24872103	Res,Chip	10K	J 1/16W
RM13	70424076	Jumper,Chip	0	
RV90	70421338	Res,Variable	10K	
RV91	70421336	Res,Variable	10K	
RV92	70421340	Res,Variable	22K	
		- MISCELLANEOUS -		
SM01	23145533	Slide Switch,2C2P		
SM02	23145532	Slide Switch,2C3P		
SM03	23145532	Slide Switch,2C3P		
SM04	23145532	Slide Switch,2C3P		
SM05	23145510	Push Switch,1C1P		
■WL09	70187004	P C Board Assy	CONNECTOR	
■UM01	70187001	P C Board Assy	REAR1	
		- RESISTORS -		
RL01	24545479	Res,Fusible	4.7	J 1/4W
		- MISCELLANEOUS -		
ZL01	70132330	Filter		
ZL02	70132329	Filter		
■UN01	70187002	P C Board Assy	REAR2	
		- INTEGRATED CIRCUITS -		
ICL01	A6030620	IC	TC7S04F	
ICL02	80408265	IC	TC74HC11AF	
		- CAPACITORS -		
CL01	24094760	Cap,Chip	0.1MF	Z 25V
		- RESISTORS -		
RL10	24872104	Res,Chip	100K	J 1/16W
RL11	24872104	Res,Chip	100K	J 1/16W
RL12	24872104	Res,Chip	100K	J 1/16W
RL13	24872104	Res,Chip	100K	J 1/16W
RL14	70424076	Jumper,Chip	0	
RV10	70421340	Res,Variable	22K	
RV11	70421334	Res,Variable	2.2K	
		- MISCELLANEOUS -		
SL10	70145405	Switch,Rotary		
SL11	23145478	Slide Switch,1C2P		
SL12	23145478	Slide Switch,1C2P		
WL10	70178233	Wire		
■UX01	70187003	P C Board Assy	MOTHER	
		- CAPACITORS -		
CM70	24774220	Cap,Chip	22PF	J 50V
CM71	24774220	Cap,Chip	22PF	J 50V
CM72	24774220	Cap,Chip	22PF	J 50V
CM73	24774221	Cap,Chip	220PF	J 50V
		- RESISTORS -		
RM70	24872222	Res,Chip	2.2K	J 1/16W
RM71	24872222	Res,Chip	2.2K	J 1/16W
RM72	24872222	Res,Chip	2.2K	J 1/16W
		- MISCELLANEOUS -		
PM01	70164287	SOCKET	30P	
PM02	23901582	Socket	28P	
WM10	70178317	Wire		

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
WM11	70178586	Wire		
■UM01	70188764	P C Board Assy	HEAD	
		- CAPACITORS -		
CM19	24291226	Cap,Tantalum,Chip	22MF	M 6.3V
CM20	24094760	Cap,Chip	0.1MF	Z 25V
CM21	24292225	Cap,Tantalum,Chip	2.2MF	M 10V
CM22	24094780	Cap,Chip	0.1MF	Z 25V
		- RESISTORS -		
RM01	24011104	Res,Chip	100K	J 1/20W
RM02	24011104	Res,Chip	100K	J 1/20W
RM03	24011104	Res,Chip	100K	J 1/20W
RM04	24011104	Res,Chip	100K	J 1/20W
RM05	24011104	Res,Chip	100K	J 1/20W
RM28	24011391	Res,Chip	390	J 1/20W
RM27	24011823	Res,Chip	82K	J 1/20W
RM28	24011103	Res,Chip	10K	J 1/20W
■UM11	70188765	P C Board Assy	FPC	
		- INTEGRATED CIRCUITS -		
ICM02	B0370100	IC	TA78L09F	
ICM03	B0370060	IC	TA78L05F	
		- TRANSISTORS -		
QM11	70114209	Transistor,Chip	2SA1022-C	
QM12	23314558	Transistor	2SA1610	
QM13	23314562	Transistor	2SC4176	
QM14	70114209	Transistor,Chip	2SA1022-C	
QM15	23314558	Transistor	2SA1610	
QM16	23314562	Transistor	2SC4176	
		- DIODES -		
DM01	23118041	Diode,Chip	MA111	
DM02	23118041	Diode,Chip	MA111	
DM03	23118041	Diode,Chip	MA111	
DM04	23118041	Diode,Chip	MA111	
		- CAPACITORS -		
CM01	24088907	Chip,Cap,Tantalum	3.3MF	M 16V
CM02	24088907	Chip,Cap,Tantalum	3.3MF	M 16V
CM03	24088905	Chip,Cap,Tantalum	6.8MF	M 6.3V
CM04	24088905	Chip,Cap,Tantalum	4.7MF	M 10V
CM05	24088905	Chip,Cap,Tantalum	6.8MF	M 6.3V
CM06	24109103	Cap,Ceramic,Chip	0.01MF	K 25V
CM07	24109103	Cap,Ceramic,Chip	0.01MF	K 25V
CM09	24109271	Cap,Ceramic,Chip	270PF	K 50V
CM10	24105470	Cap,Ceramic,Chip	47PF	J 50V
CM11	24105220	Cap,Ceramic,Chip	22MF	J 50V
CM12	24088906	Chip,Cap,Tantalum	4.7MF	M 10V
CM13	24109103	Cap,Ceramic,Chip	0.01MF	K 25V
CM14	24088906	Chip,Cap,Tantalum	4.7MF	M 10V
CM15	24105220	Cap,Ceramic,Chip	22MF	J 50V
CM16	24105181	Cap,Ceramic,Chip	180PF	J 50V
CM17	24109103	Cap,Ceramic,Chip	0.01MF	K 25V
CM18	24109103	Cap,Ceramic,Chip	0.01MF	K 25V
		- RESISTORS -		
RM07	24011103	Res,Chip	10K	J 1/20W
RM08	24011104	Res,Chip	100K	J 1/20W
RM09	24011101	Res,Chip	100	J 1/20W
RM10	24011332	Res,Chip	3.3K	J 1/20W
RM11	24011272	Res,Chip	2.7K	J 1/20W
RM12	24872510	Res,Chip	51	J 1/16W
RM13	24011105	Res,Chip	1M	J 1/20W
RM14	24011391	Res,Chip	390	J 1/20W
RM15	24011221	Res,Chip	220	J 1/20W
RM17	24011560	Res,Chip	56	J 1/20W
RM18	24011105	Res,Chip	1M	J 1/20W
RM19	24011102	Res,Chip	1K	J 1/20W
RM20	24011122	Res,Chip	1.2K	J 1/20W
RM21	24011104	Res,Chip	100K	J 1/20W
RM22	24872510	Res,Chip	51	J 1/16W
RM23	24011101	Res,Chip	100	J 1/20W